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TRAFFIC AND PARKING STUDIES

JF505

February 12, 2009

A Traffic Impact Study (TIS) For TM 5401 Located In The Buena Creek Area Of Northern San Diego County (TM5401 RPL 1; ER04-08-036) - Kawano Subdivision

Introduction

In late January 2005, this consultant was retained by the developer to conduct a TIS for a residential project fronting on Buena Creek Road between San Marcos and Vista. That traffic study is now completed and this report will document its findings.

The Project

The project is to consist of 8 residential single family lots facing on a private cul de sac which accesses onto Buena Creek Road. Figure 1 locates the project north of Rte 78 and S. Santa Fe Ave. and northeast of the intersection of Buena Creek Rd and Monte Vista Drive. Figure 2 is a site plan for the project.

The private cul de sac street is to meet all County standards for private streets and will have a 40 foot right of way with a 28 foot graded cross section and with 24 feet of pavement edged with 6 inch high curb and gutter.

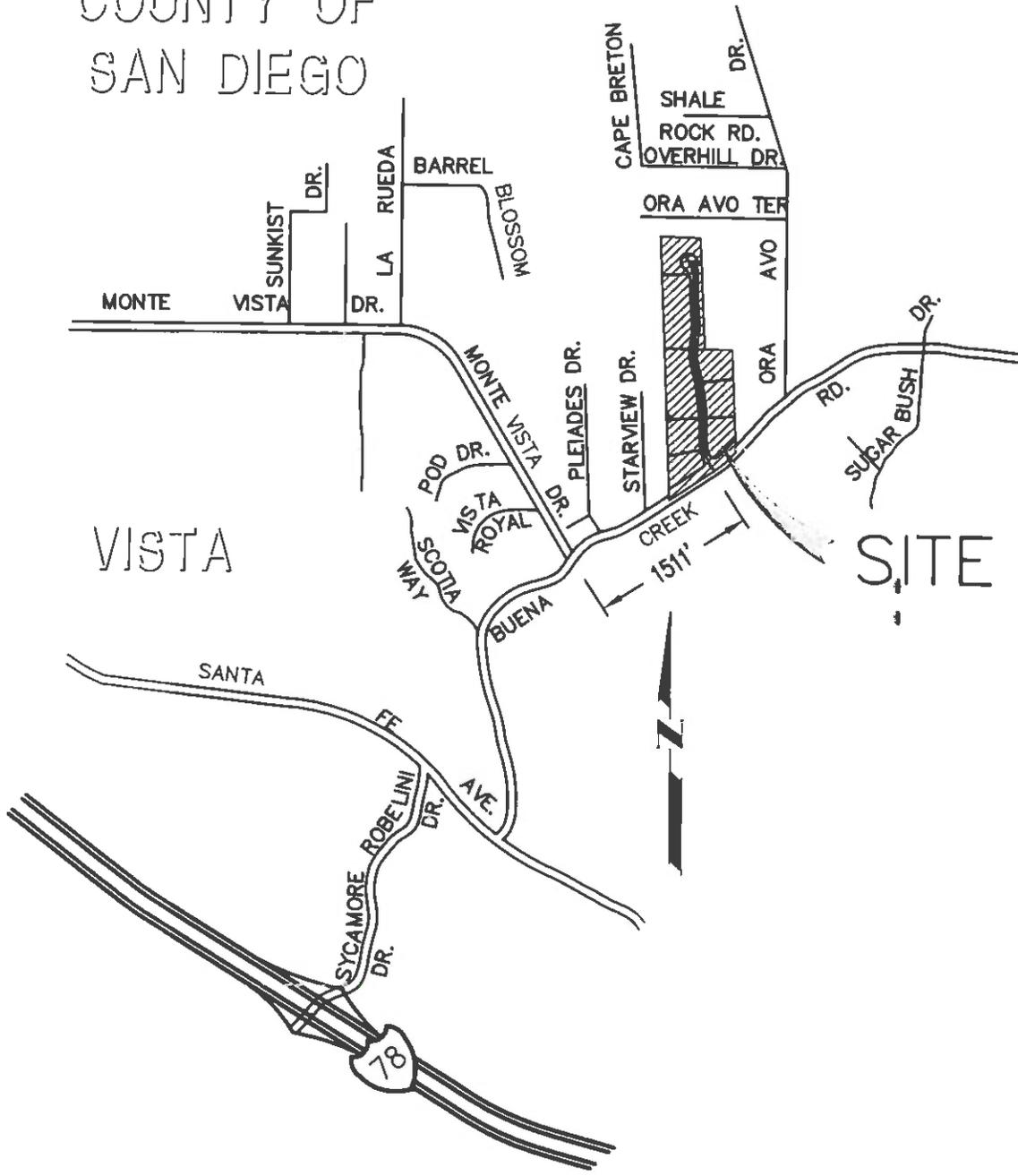
The project will also widen Buena Creek Rd on its side by 33 feet, across its frontage, so it will have a half pavement width of 44 feet with a berm at the edge and a 54 foot, half right of way. Buena Creek Rd is SA-490 on the County Circulation Element. Under the GP 2020 recommendations it is a 4.1 B Major Road with Intermittent Turn Lanes. Its minimum Right of Way is to be 84 feet to 98 feet. Since the half Right of Way along the south side of Buena Creek Rd is only 40 feet, the project purposes to have 54 feet of half right of way across its frontage making a total of 94 feet right of way. This of course is with the existing right of way south of the centerline and does not consider any future dedications along the south side of Buena Creek Rd.

The Study

The traffic study starts out by having a number of 24 hour segment traffic counts as well as two, intersection peak hour counts to be used in an analysis of existing traffic, by calculating the delays and LOS's at the intersections and comparing segment volumes to County standards and equivalent LOS's.

ESCONDIDO

COUNTY OF
SAN DIEGO



PROJECT LOCATION MAP

NO SCALE

THOMAS BROS. PG 1108, E1



PROJECT SITE PLAN
TM 5401
KAWANO SUBDIVISION
COUNTY OF SAN DIEGO, CALIFORNIA
SCALE: 1"=150'

FIGURE 2

The project traffic is then generated, distributed, and assigned to the network so a before and after, project comparison can be made at intersections and segments.

Finally, the other project cumulative traffic is derived, and assigned to the network so its impact analysis can be made at intersections and segments.

With all of the above, the direct and cumulative traffic impacts of the project can be found to see if there is a need to find mitigation projects to offset direct or cumulative impacts.

Existing Circulation System And Traffic

As shown on Figure 1, Buena Creek Road provides the primary access for TM 5401. Buena Creek Road though it is on the GP-2020 circulations plan to be a four lane Major street with intermittent turn lanes, today it is a two lane roadway. It has a double yellow centerline with edge lines and only occasional shoulders wide enough for parking. Today it has a 45 MPH speed limit.

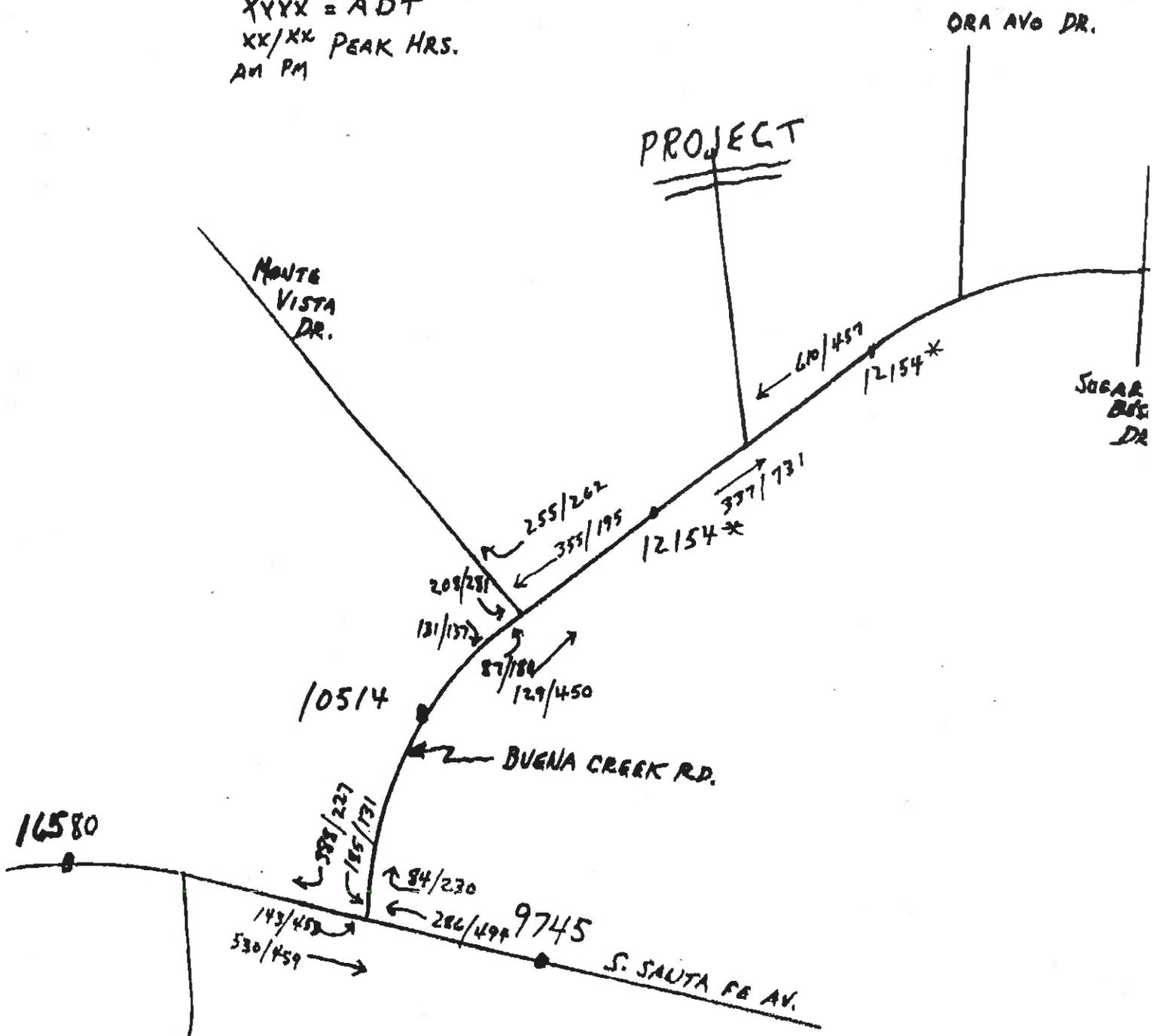
Monte Vista Drive is also a future Major Roadway with intermittent turn lanes but today has only two lanes. It has a double yellow centerline, edge line and only occasional shoulders. It has a 45 MPH speed limit.

South Santa Fe is a Major Roadway with a raised median on the GP 2020 on the circulation element, but today is only a two lane roadway. It has a double yellow centerline and edge lines and has occasional gravel turnouts. It has a 45 MPH speed limit.

Existing Traffic Analysis

The existing traffic as counted for this study is shown on Figure 3 (Appendix A2-A8). The segment ADT counts were compared to the County Standards shown on Figure 4. Note on Figure 4 that all two lane roadways similar to the existing ones of this study have a Level Of Service (LOS) E capacity of 16200 ADT. Using the segment volumes of Figure 3, Table 1 below shows the existing segment LOS's.

N
 N
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NO SCALE
 YYYY = ADT
 XX/XX PEAK HRS.
 AM PM



PROJECT

TM 5401
 EXISTING TRAFFIC

5

FIGURE 3

COUNTS MADE ON 2-10-05
 * ESTIMATED FROM PEAK HOUR COUNTS

SYCAMORE-RABELIN

SUMMARY OF COUNTY OF SAN DIEGO PUBLIC ROAD STANDARDS

CIRCULATION ELEMENT ROAD CROSS SECTIONS

AVERAGE DAILY VEHICLE TRIPS (ADT)

CLASS	CIRCULATION ELEMENT ROAD CROSS SECTIONS										LEVEL OF SERVICE (LOS)						
	PROPERTY LINE	TRAVELED WAY	SHOULDER	PARKWAY STRIP	ROADBED	MEDIAN	TRAVELED WAY	SHOULDER	PROPERTY LINE	MIN. CURVE RADIUS	MAX. GRADES	MIN. DESIGN SPEED (MPH)	A Free flow	B Steady flow	C Stable flow	D Approach unstable	E Unstable flow
EXPRESSWAY Divided highway with only selected public road access with full grade separations	34'	36'	10'	10'	126'	146'	1200'	6%	55				<36,000	<54,000	<70,000	<86,000	<108,000
PRIME ARTERIAL Divided highway, signalized intersections, access control, or extra lanes as required	14'	36'	8'	10'	102'	122'	1200'	6%	55				<22,200	<37,000	<44,600	<50,000	<57,000
MAJOR ROAD 4-lane divided road, access & parking controlled as necessary	14'	24'	8'	10'	78'	98'	1200'	7%	55				<14,800	<24,700	<29,600	<33,400	<37,000
COLLECTOR 4-lane undivided road	—	24'	8'	10'	64'	84'	700'	7%	45				<13,700	<22,800	<27,400	<30,800	<34,200
LIGHT COLLECTOR 2-lane undivided road	—	12'	8'	10'	40'	60'	700'	9%	45				<1,900	<4,100	<7,100	<10,900	<16,200
RURAL COLLECTOR 2-lane undivided road, extra RW allows greater flexibility & upgrade	—	12'	8'	22'	40'	84'	500'	12%	40				<1,900	<4,100	<7,100	<10,900	<16,200
RURAL LIGHT COLLECTOR 2-lane undivided road, decreased "curve radii" standards	—	12'	8'	10'	40'	60'	500'	12%	40				<1,900	<4,100	<7,100	<10,900	<16,200
RURAL MOUNTAIN 2-lane undivided road appropriate only in rural mountain areas	—	12'	8'	30'	40'	100'	500'	12%	40				<1,900	<4,100	<7,100	<10,900	<16,200
RECREATIONAL PARKWAY Recreational routes for travel pleasure purposes	—	12'	8'	30'	40'	100'	400'	12%	25				<1,900	<4,100	<7,100	<10,900	<16,200

NON-CIRCULATION ROADS																
CLASS	TRAVELED WAY	SHOULDER	PARKWAY STRIP	ROADBED	MEDIAN	TRAVELED WAY	SHOULDER	PROPERTY LINE	MIN. CURVE RADIUS	MAX. GRADES	MIN. DESIGN SPEED (MPH)	A Free flow	B Steady flow	C Stable flow	D Approach unstable	E Unstable flow
RESIDENTIAL COLLECTOR	12'	8'	10'	40'	60'	300'	12%	30				<4,500	<7,100	<10,900	<16,200	<20,000
RESIDENTIAL STREET	12'	6'	10'	36'	56'	200'	15%	30				<1,500	<4,100	<7,100	<10,900	<16,200
RESIDENTIAL LOOP/CUL-DE-SAC	12'	4'	10'	32'	52'	200'	15%	30				<200	<4,100	<7,100	<10,900	<16,200

Levels of service are not applied to non-circulation roads since their primary purpose is to serve adjoining lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors. Not all non-circulation road classifications are shown.

For full standards, refer to Public Road Standards, adopted by the Board of Supervisors on 2/26/92

*Additional pavement and RW may be required for C.E. Collectors in Industrial/Commercial Zones, 4 and 12 ft, respectively. C.E. roads needing additional turn lanes will require an additional 12 to 14 ft. of pavement and RW for each lane. C.E. roads designated with Blue Lanes will require an additional 10 ft. of pavement and RW.

FIGURE 4

Table 1
Existing Segment LOS's

<u>Segment</u>	<u>Capacity</u>	<u>Existing Volume</u>	<u>LOS</u>
1. Buena Creek			
A. S. Santa Fe to Monte Vista	16200	10514	D
B. Monte Vista to Project	16200	12154	E
C. Project to Sugar Bush	16200	12154	E
2. S. Santa Fe			
A. Buena Creek to Mar Vista	16200	16580	F
B. Buena Creek to Palmyra	16200	9745	D

Since Table 1 shows that existing traffic results in LOS E and F on three of the five segments, under County Guidelines of December 5, 2007, if a project adds even one trip a day to any of the E or F segments, the project will have a cumulatively considerable cumulative traffic impact. Thus, we know that TM 5401 will have a cumulative traffic impact on these three segments.

Figure 5 shows the existing lane geometrics and controls at the two principal intersections affected by the project. Using these lanes and the intersection peak hour volumes of Figure 3, Highway Capacity Manual, Traffix, computerized computations were used to determine existing delays and LOS's at the intersections. Table 2 below shows the results of the computations, which are shown in the Appendix (A9-A12).

Table 2
Existing Intersection Delays And LOS's

<u>Intersection</u>	<u>Delay</u>	<u>LOS</u>
1. Buena Creek & Monte Vista		
AM	27.6	D
PM	65.6	F
2. Buena Creek & S. Santa Fe		
AM	22.6	C
PM	47.5	D
3. Project Drive & Buena Creek		
AM	N.A	N.A
PM	N.A	N.A

Note in Table 2 that Buena Creek and Monte Vista with existing traffic has a LOS F in the PM peak. This means that under County Guidelines for Determining Significance

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⊕ = SIGNAL

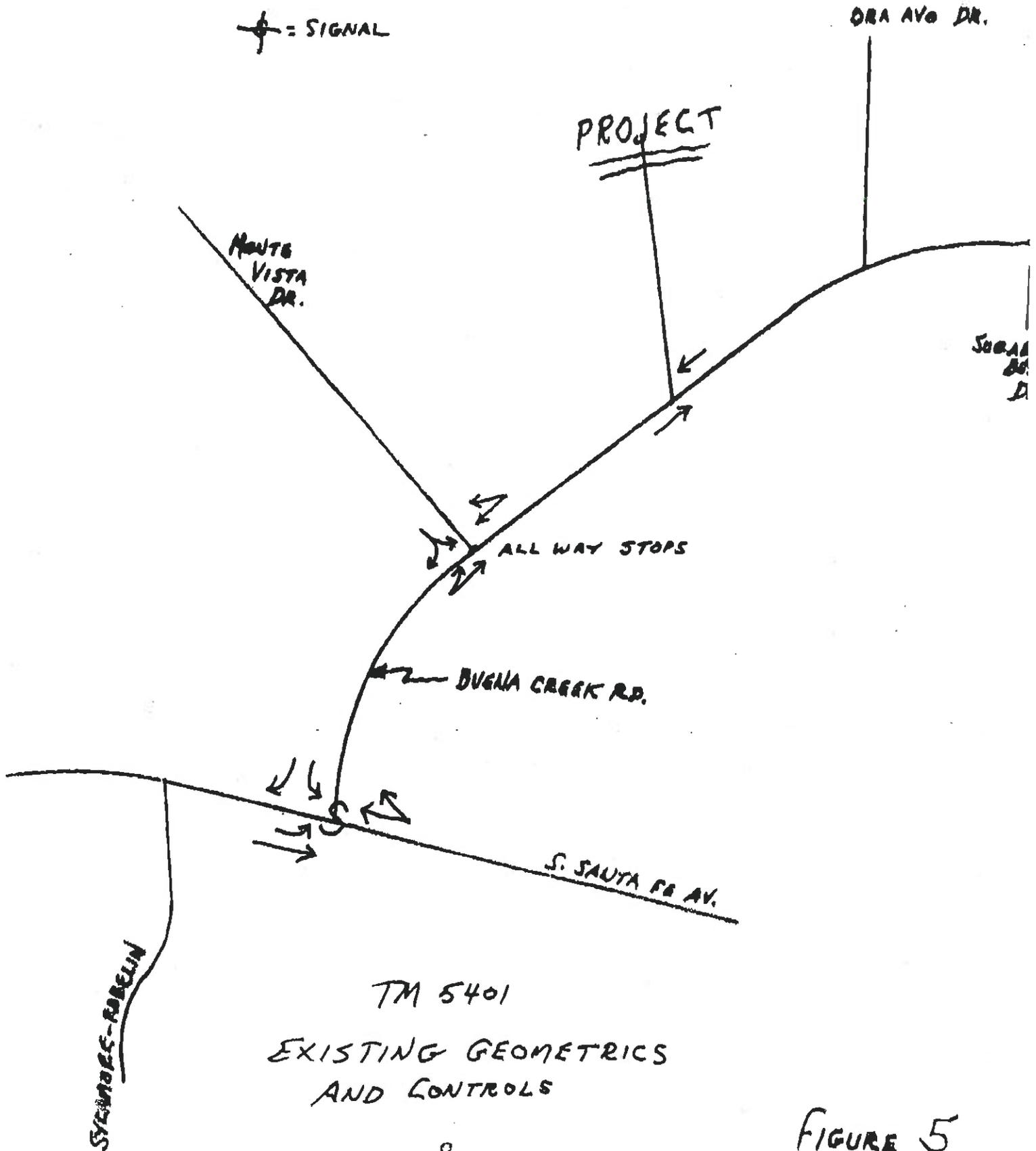


FIGURE 5

dated December 5, 2007, even before any project traffic is added, the project will have a cumulative traffic impact on this intersection.

Project Traffic Generation

In order to determine if the project will have any direct traffic impacts it is first necessary to estimate its traffic generation. Using SANDAG's regional generation rates, Table 3 shows TM 5401 estimated traffic generation.

Table 3
TM 5401 Traffic Generation

<u>Land Use</u>	<u>Units</u>	<u>ADT</u> <u>Rate</u>	<u>Two Way</u> <u>ADT</u>	<u>Peak Hour *</u>			
				<u>AM</u>		<u>PM</u>	
				<u>In</u>	<u>Out</u>	<u>In</u>	<u>Out</u>
Estate Residential	8	12	96	2	6	7	3

*At 8% of ADT split 3:7 in AM and 10% of ADT split 7:3 in PM
Note how small the project volumes are compared to those of Figure 3.

Project Traffic Distribution

It is also necessary to estimate the projects traffic directional distribution. In this case, a SANDAG Cities/County, Series 10, year 2000, single zone traffic forecast was obtained for the traffic zone containing the project. Figure 6 shows the estimated project traffic distribution.

Project Traffic Assignments

Using the project traffic from Table 3 and the distribution shown on Figure 6, a project traffic assignment was made. Figure 7 shows the project traffic only.

Project Traffic Impact Analysis

By using the project traffic of Figure 7 and adding it to the existing traffic of Figure 3, the projects traffic impact can be quantified. Figure 8 shows the combined "after project" traffic.

Using the segment volumes of Figure 8 they can be compared to the existing volumes shown in Table 1 for a before and after project comparison. Table 4 does that.

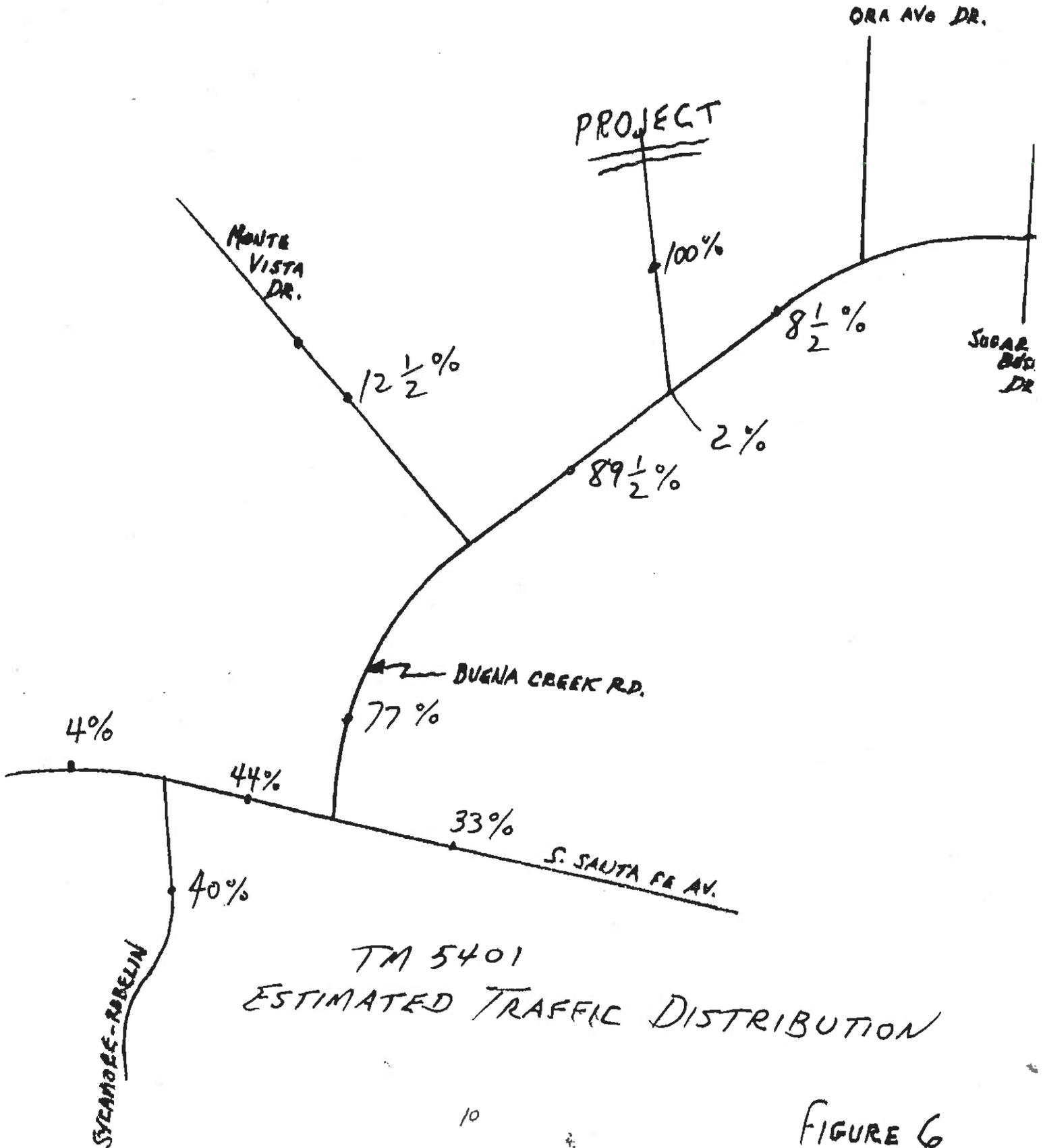
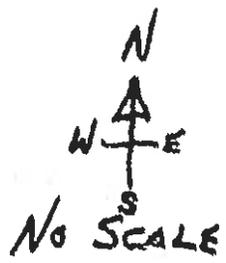
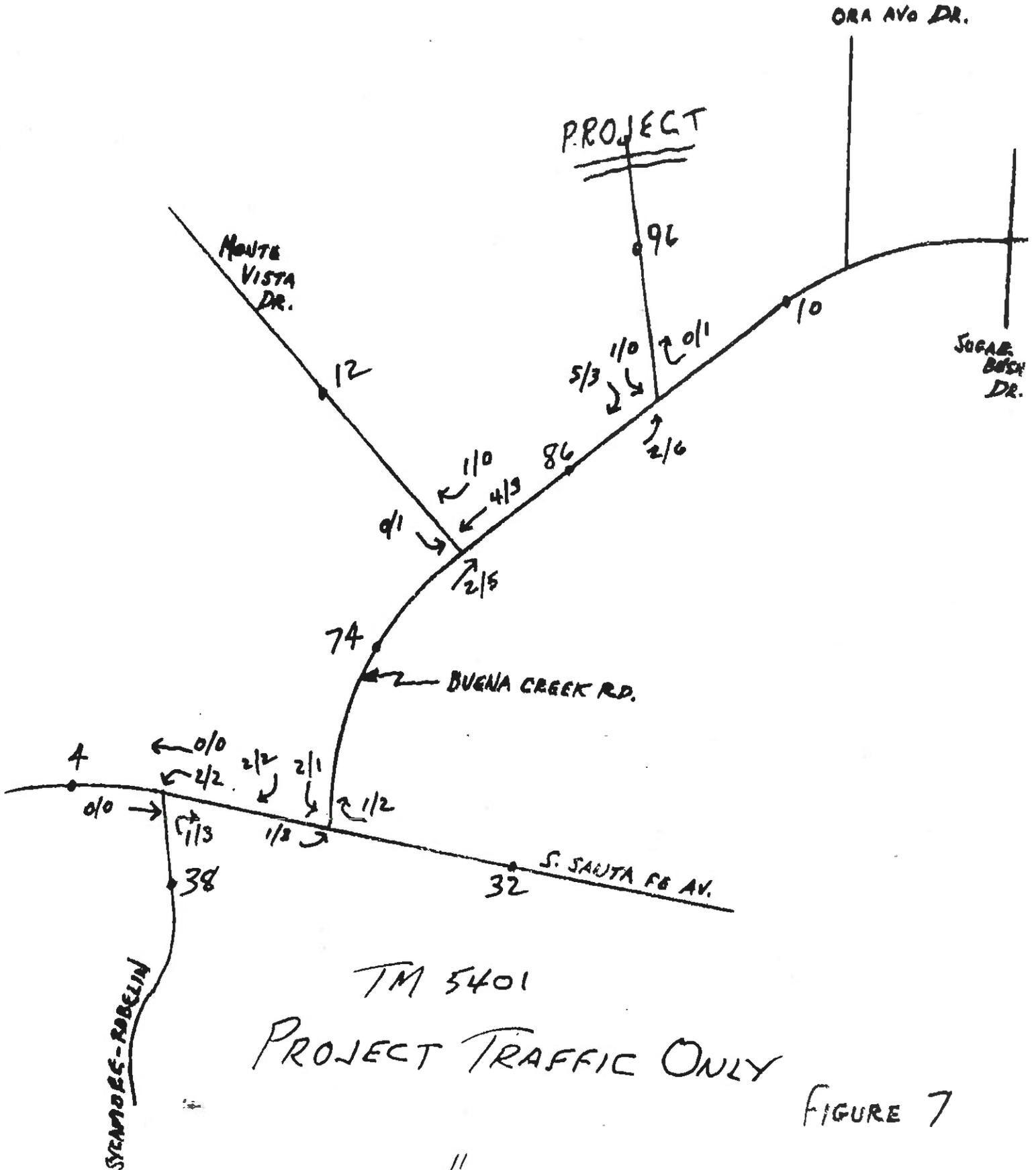


FIGURE 6

N
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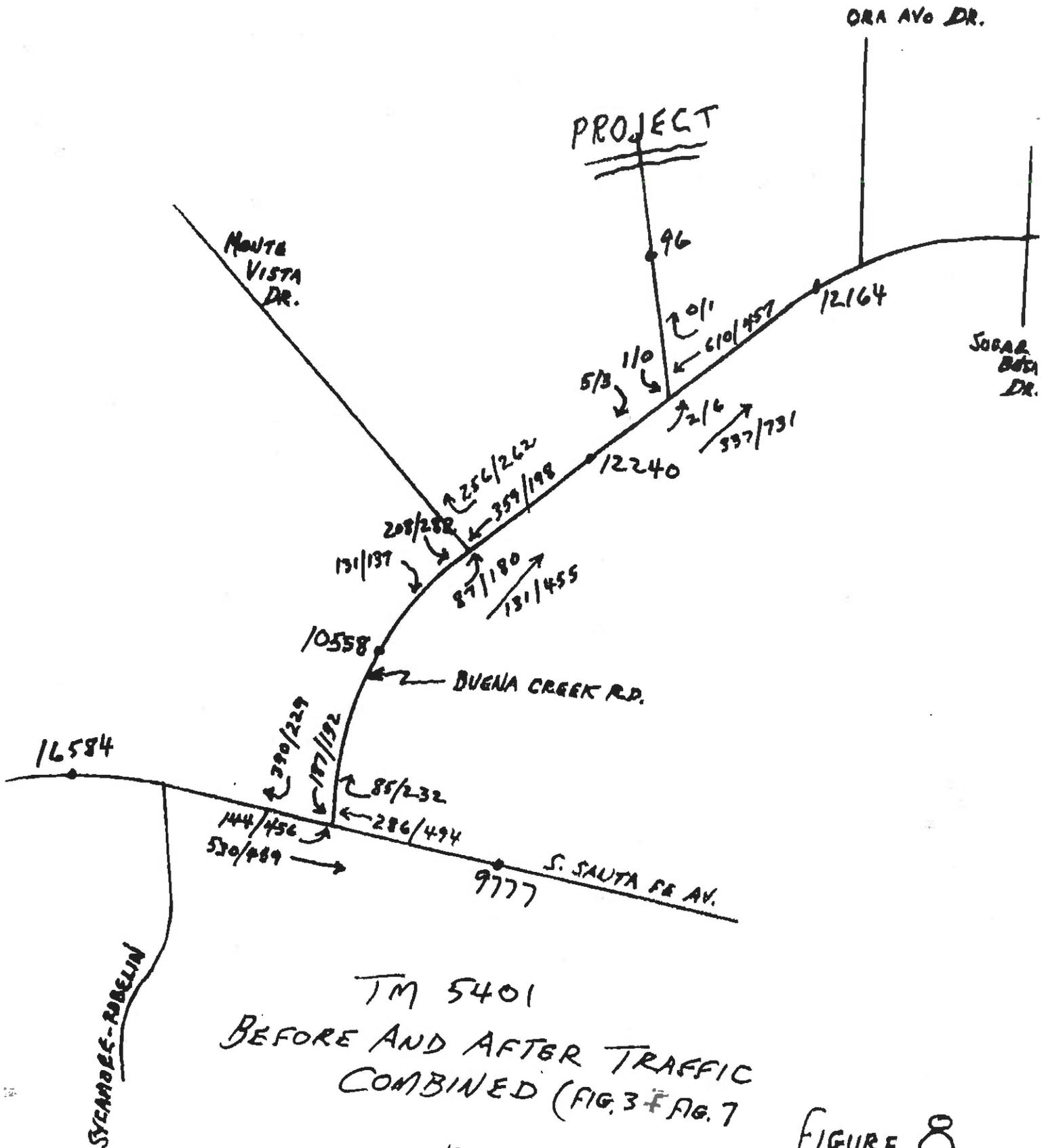


FIGURE 8

Table 4
Segment Comparison Before And After Project

<u>Segment</u>	<u>Capacity</u>	<u>Existing</u>		<u>Existing + Project</u>		
		<u>Volume</u>	<u>LOS</u>	<u>Volume</u>	<u>LOS</u>	<u>LOS Change?</u>
1. Buena Creek						
A. S. Santa Fe to Monte Vista	16200	10514	D	10588	D	no
B. Monte Vista to Project	16200	12154	E	12240	E	no
C. Project to Sugar Bush	16200	12154	E	12164	E	no
2. S. Santa Fe						
A. Buena Creek to Mar Vista	16200	16580	F	16584	F	no
B. Buena Creek to Palmyra	16200	9745	D	9777	D	no

As shown in Table 4, the project does not change the LOS anywhere and therefore has no direct traffic impact on the segments. It still of course has a cumulative traffic impact on the three E or F segments.

The intersection volumes of Figure 8 can also be compared to the County's December 5, 2007 Guidelines for Determining Significance for signalized and unsignalized intersections. Table 5A uses the guidelines for the signalized intersection of Buena Creek and S. Santa Fe while Table 5 B uses the guidelines for the two unsignalized intersections to see if the project has a significant impact at either of the intersections.

Table 5A
Signalized Intersection Delay And LOS Before And After Project

<u>Intersection</u>		<u>Existing</u>		<u>Existing+Project</u>		<u>Delay Change</u>	<u>Signif?</u>
		<u>Delay</u>	<u>LOS</u>	<u>Delay</u>	<u>LOS</u>		
Buena Creek & S. Santa Fe	AM	22.6	C	20.1	C	-2.5	no
	PM	47.5	D	48.7	D	+1.2	no

*Worst Case

Table 5B
Unsignalized Intersection Analysis Of Traffic Impact

		<u>Existing</u>		<u>Existing + Project</u>			<u>Signif?</u>
		<u>Delay</u>	<u>LOS</u>	<u>Delay</u>	<u>LOS</u>	<u>Critical Move</u>	
1. Buena Creek & Monte Vista							
	AM	27.6	D	28.7	D	NA	No
	PM	65.6	F	68.5	F	5 trips	No
2. Buena Creek & Project							
	AM	NA	NA	14.0	B	NA	No
	PM	NA	NA	11.5	B	NA	No

December 5, 2007 Guideline Requirements for Significance

The proposed project will allow increases up to 5 peak hour trips on a critical movement of an unsignalized intersection and the unsignalized intersection currently operates at LOS F.

1. Analysis: Existing Buena Creek And Monte Vista is at LOS F in PM Peak (Table 2)

The existing critical movement at this intersection in the PM is the northbound through movement (See A11). Figure 7 shows that the project adds 5 vehicles in the PM peak but does not exceed 5 and therefore does not have a direct impact in addition to a cumulative impact at this intersection.

2. After the project, the project street intersection at Buena Creek will be at LOS B, in the AM and PM (A13 and A15) and therefore the project has no impact here.

3. Additionally, at County staffs request the TM 5401 projects impact on the I-15/Deer Springs Road interchange was examined. Using a SANDAG single zone traffic assignment, it was found that only 2.9 percent (or 3 ADT) of the projects traffic will be on Deer Springs Road leaving Twin Oaks Valley Road. At the I-15 interchange the projects traffic is only 1.25 ADT - say 2 ADT. Thus the estimated average driver's perception of the project's contribution to the impacts at a roadway intersection or upon a roadway segment (i.e. the additional traffic generated by the project) results in the addition of approximately one (1) additional vehicle every 12 hours. The project will have no direct traffic impact here.

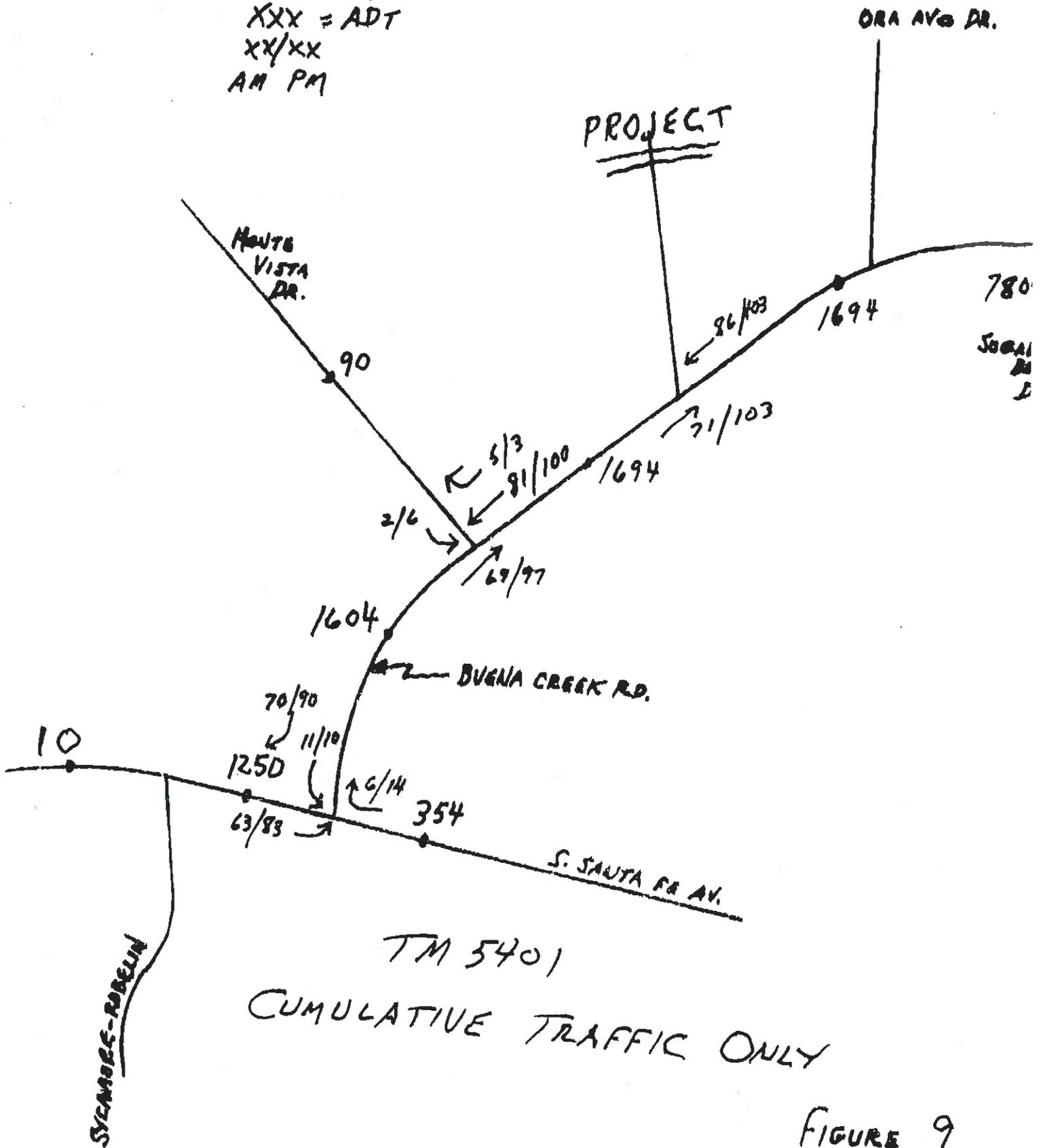
Cumulative Traffic

In addition to existing and project traffic, by State Law it is now necessary to consider the traffic from other unbuilt or "cumulative" projects in the vicinity. In the case of TM 5401 a nearby project, Sugar Bush, developed a traffic forecast for all the cumulative projects in the vicinity of that project and TM 5401. The Appendix (A17 & A18) gives a list of the cumulative projects and cumulative traffic assignments. Figure 9 shows the ADT and peak hour cumulative volumes near the TM 5401 project while Figure 10 shows the



NO SCALE

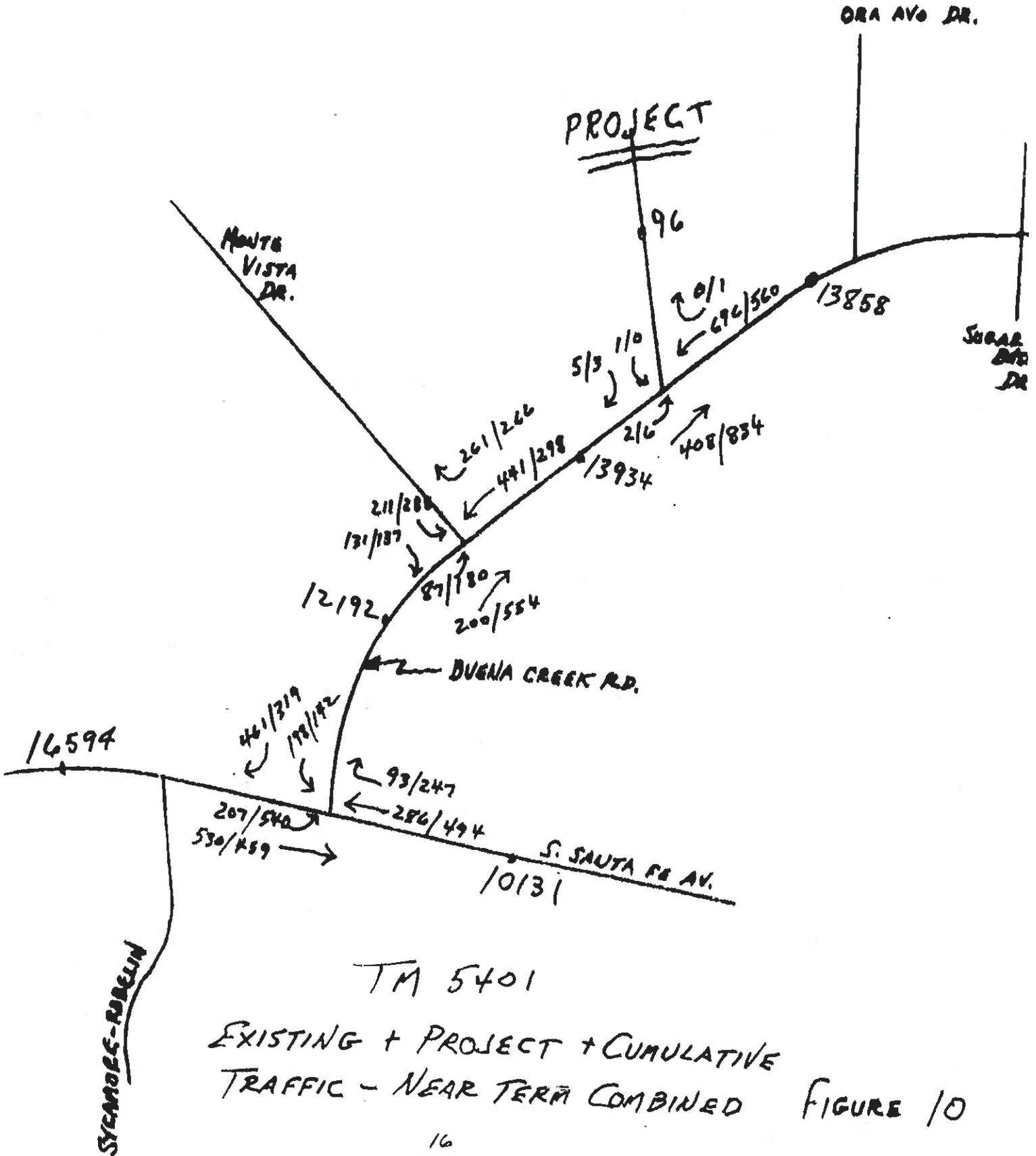
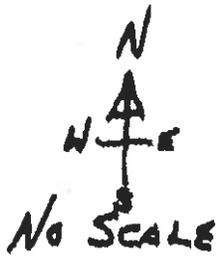
XXX = ADT
XX/XX
AM PM



TM 5401

CUMULATIVE TRAFFIC ONLY

FIGURE 9



combined near term traffic of existing + project + cumulative traffic for segment and intersection analysis.

Cumulative Traffic Analysis

Using the ADT's from Figure 10 on the segments of interest, Table 6 shows the three traffic scenario segment comparison/analysis.

Table 6
Segment Three Traffic Scenario LOS Comparison

<u>Segment</u>	<u>Capacity</u>	<u>Existing</u>			<u>Existing + Project</u>			<u>Existing+Project+Cumulative</u>		
		<u>Volume</u>	<u>LOS</u>	<u>Volume</u>	<u>LOS</u>	<u>Change?</u>	<u>Volume</u>	<u>LOS</u>	<u>Change?</u>	
1. Buena Creek										
A. S. Santa Fe to Monte Vista	16200	10514	D	10588	D	no	12192	E	yes	
B. Monte Vista to Project	16200	12154	E	12240	E	no	13934	E	no	
C. Project to Sugar Bush	16200	12154	E	12164	E	no	13858	E	no	
2. S. Santa Fe										
A. Buena Creek to Mar Vista	16200	16580	F	16584	F	no	16594	F	no	
B. Buena Creek to Palmyra	16200	9745	D	9777	D	no	10131	D	no	

As shown in Table 6, the cumulative traffic changes one more segment from D to E and therefore adds to the cumulative traffic impact of the TM 5401 project - now it has a cumulative impact on four of the five segments and therefore must help mitigate its cumulative impacts.

Using the intersection volumes of Figure 10, the HCM calculations were made once again (See Appendix A19 - A22). Table 7 summarizes and compares the delays and LOS's for the three traffic scenarios.

Table 7
Intersection Comparison Of Three Traffic Scenarios Of Delays And LOS's

<u>Intersection</u>		<u>Existing</u>		<u>Existing+Project</u>				<u>Existing+Project+Cumulative</u>					
		<u>Ave Delay</u>	<u>LOS</u>	<u>Ave Delay</u>	<u>LOS</u>	<u>Critical Move</u>	<u>Delay Change</u>	<u>Signif?</u>	<u>Delay</u>	<u>LOS</u>	<u>Critical Move</u>	<u>Delay Change</u>	<u>Signif?</u>
1. Buena Creek & Monte Vista													
	AM	27.6	D	28.7	D	NA	+1.1	no	41.1	E	NA	+12.4	yes
	PM	65.6	F	68.5	F	5 trips	+2.9	no	99.8	F	5	+31.3	yes
2. Buena Creek & S. Santa Fe													
	AM	22.8	C	20.1	C	NA	-2.5	no	23.0	C	NA	+2.8	no
	PM	47.5	D	48.7	D	NA	+1.2	no	66.9	E	NA	+18.2	yes
3. Project Drive & Buena Creek													
	AM	N.A	N.A	14.0*	B	NA	N.A	no	14.8*	B	NA	+0.8	no
	PM	N.A	N.A	11.5*	B	NA	N.A	no	12.2*	B	NA	+0.7	no

As shown in Table 7, when the cumulative traffic is added to the existing + project traffic, the two main intersections have three LOS E or F peak hours instead of only one, and the cumulative traffic alone has three peak hours where its traffic impact is significant. The fact that both main intersections are at LOS E or F means that the TM 5401 project has a cumulative traffic impact at both of these intersections and must help mitigate the cumulative impact even though it is only a relatively small project.

The proposed TM 5401 project generates 96 ADT. As shown in this TIS, these trips will be distributed on circulation element roadways in the County that were analyzed by the TIF program, some of which currently, or are projected to, operate at inadequate levels of service. These project trips therefore contribute to a potential significant cumulative impact and mitigation is required. The potential growth represented by the project was included in the growth projections upon which the TIF program is based. Therefore, payment of the TIF, which will be required at issuance of building permits, in combination with other components of the program described above, will mitigate potential cumulative traffic impacts to less than significant on the network to be improved by TIF fees.

In the latest TIF program (January 30, 2008) freeway interchanges are now eligible to receive TIF fees. This means that the projects 2 ADT cumulative impacts on the Deer Springs Rd./ I-15 interchange area, will now be mitigated by paying the latest Fallbrook area TIF fees to the satisfaction of the Director of Public Works.

Additional Cumulative Traffic Analysis

Since the cumulative traffic shown earlier on Figures 9 and 10 were analyzed, there have been additional major projects proposed near I-15, that seriously impacts Deer Springs Road and Mountain Meadow Rd, and their interchange with I-15. Figure 11 shows the page from the Casa De Ampara project, which shows the cumulative traffic plus Casa De Ampara traffic, along Deer Springs Road north and east of Twin Oaks Valley Road. Note that near Twin Oaks Valley Road, the ADT is at 32,135, while approaching I-15 the ADT increase to 45,000 ADT. The daily TM 5401 project traffic (ADT) added to the roadway segment (i.e. 3 ADT added by the project vs. 32135 ADT added by the cumulative projects) is only .00009 of the total.

Project TM 5401's 2 ADT on Deer Springs Rd approaching I-15, is only .000044 of the 45000 total cumulative traffic at this location!

Because of the very low portion of total cumulative traffic added by TM 5401 as just shown above, it is this consultants professional opinion that TM 5401's traffic will "not have a cumulatively considerable" traffic impact on these roadways.

Mitigation

As shown throughout this TIS, the TM 5401 project has cumulative traffic impacts on four segments and the S. Santa Fe/Buena Creek intersection. The only way a small project can contribute meaningfully to these cumulative impacts is contributing its share to the County Transportation Impact Fee (TIF) program. With this fee, the County collects fees from many projects and thus with this large pool of funds can construct meaningful projects to mitigate cumulative traffic impacts.

Conclusions, Recommendations, and Mitigation

This TIS has shown that TM 5401 will only add 2 daily trips to the I-15/ Deer Springs Road interchange area. These daily trips, and the peak hour trips, are so miniscule that they do not have a "cumulatively considerable" traffic impact on these roadways and thus do not require mitigation beyond paying the TIF fees as mentioned below.

This TIS has also shown that the project has cumulative traffic impacts either because of existing traffic or other cumulative projects. Fortunately for mitigating these impacts, the County has adopted a TIF program where small projects can contribute, based on their impact, and when combined with other projects, meaningful mitigation construction projects can be undertaken.

It is recommended that the project dedicate right of way and make frontage improvements along its Buena Creek Road frontage, as per the DPW's requirements for a major road with intermittent turn lanes and an 84' to 98' right of way as called for in GP 2020. Figures 12A thru 12B show the Buena Creek improvements, the proposed striping,

It is recommended that TM 5401 contribute its share (based on 8 DUE's) to the County TIF program to mitigate its share of its cumulative traffic impacts.

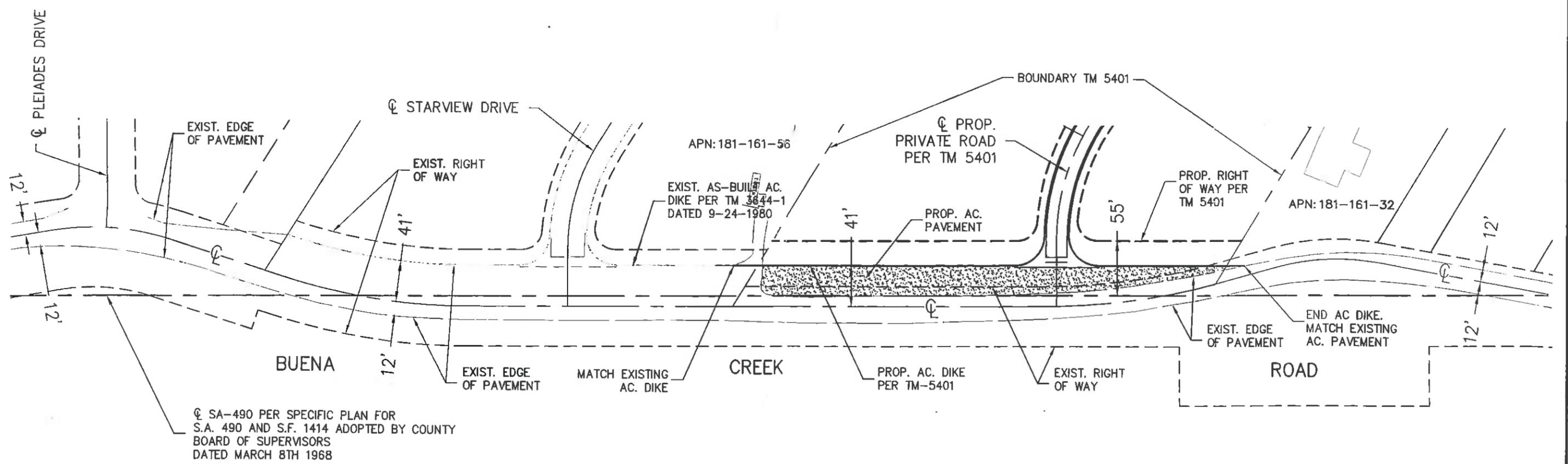
It is recommended that the project mitigate its cumulative impacts on Deer Springs Road and at the I-15/Deer Spring Roads interchange, by paying its TIF fees.

With implementation of the above mitigation recommendations, the project will have paid for its minor traffic impacts and the County and community can be assured that TM 5401 has done its part towards traffic congestion alleviation.

James W. Federhart
Federhart & Associates 2/12/09



PROPOSED IMPROVEMENT PLAN: BUENA CREEK ROAD
 TM-5401, COUNTY OF SAN DIEGO



⊕ SA-490 PER SPECIFIC PLAN FOR
 S.A. 490 AND S.F. 1414 ADOPTED BY COUNTY
 BOARD OF SUPERVISORS
 DATED MARCH 8TH 1968

LEGEND

- PROPERTY LINE
- ⊕ CENTERLINE BUENA CREEK ROAD (R.S. 404)
- - - EXISTING RIGHT OF WAY
- - - PROPOSED RIGHT OF WAY
- - - EXISTING EDGE OF AC. PAVEMENT
- - - EXISTING AC. DIKE
- ▨ PROPOSED AC PAVEMENT
- === PROPOSED AC. DIKE

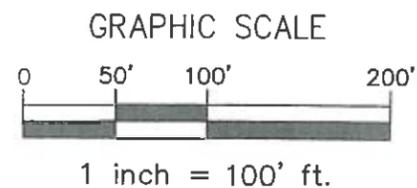
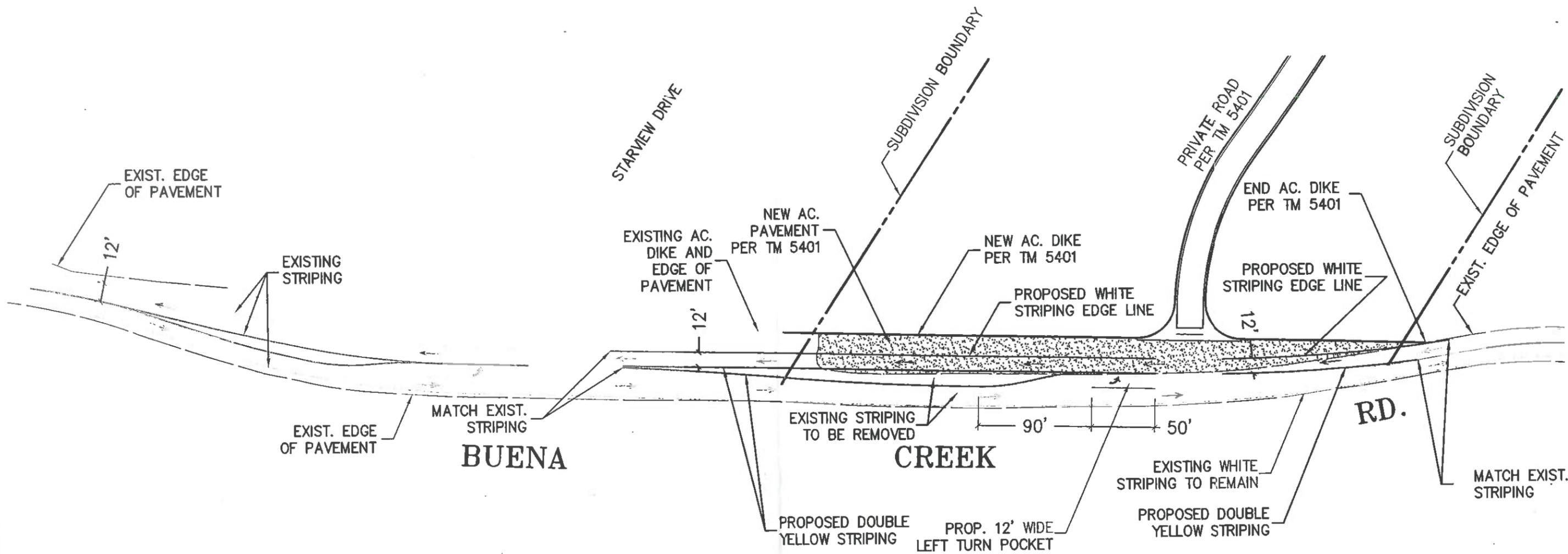


FIGURE 12A

PROPOSED IMPROVEMENT PLAN		JOB NO.
BUENA CREEK ROAD		SCALE
TM 5401, COUNTY OF SAN DIEGO, CALIFORNIA		1" = 100'

PROPOSED STRIPING PLAN: BUENA CREEK ROAD
 TM-5401, COUNTY OF SAN DIEGO



- LEGEND**
- EX. STRIPING TO REMAIN
 - - - EX. STRIPING TO DELETE
 - DIRECTION OF TRAFFIC FLOW
 - PRO. DOUBLE YELLOW STRIPING
 - PRO. WHITE STRIPING
 - AC. PAVEMENT PER TM 5401

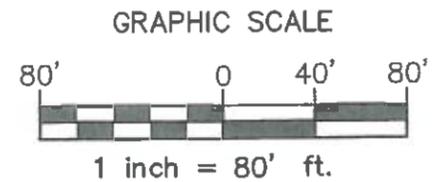


FIGURE 12B

CONCEPTUAL STRIPING PLAN		JOB NO.
TM 5401, KAWANO SUBDIVISION		SCALE: 1" = 80'
SAN DIEGO, CALIFORNIA		DATE: 5/28/08

F

APPENDIX

1350 Reynolds Avenue, Ste. 115
Irvine, CA, 92614

Site: VISTA
Date: 02/10/05

Location: BUENA CREEK ROAD
Segment: E/O SANTA FE AVENUE
Client: FEDERHART

Interval	EB				WB				Combined				Day:	Thursday	
	AM		PM		AM		PM		AM		PM				
12:00	8	40	72	281	10	19	72	277	18	59	144	558			
12:15	16		61		1		62		17		123				
12:30	8		72		7		71		15		143				
12:45	8		76		1		72		9		148				
01:00	6	21	74	303	0	7	73	283	6	28	147	586			
01:15	4		70		4		69		8		139				
01:30	4		78		3		69		7		147				
01:45	7		81		0		72		7		153				
02:00	3	6	88	413	1	8	64	287	4	14	152	700			
02:15	0		81		1		62		4		143				
02:30	0		95		4		80		4		175				
02:45	3		149		2		81		5		230				
03:00	3	7	128	496	2	23	66	341	5	30	194	837			
03:15	2		121		7		100		9		221				
03:30	0		120		6		93		6		213				
03:45	2		127		8		82		10		209				
04:00	3	12	154	632	5	61	77	340	8	73	231	972			
04:15	4		166		13		90		17		256				
04:30	3		152		22		84		25		236				
04:45	2		160		21		89		23		249				
05:00	3	58	153	615	23	205	86	311	26	263	239	926			
05:15	11		174		48		64		59		238				
05:30	16		147		65		89		81		236				
05:45	28		141		69		72		97		213				
06:00	36	217	113	385	81	463	72	256	117	680	185	641			
06:15	52		108		114		74		166		182				
06:30	71		101		128		56		199		157				
06:45	58		63		140		54		198		117				
07:00	56	232	76	258	134	485	42	146	190	717	118	404			
07:15	57		84		138		42		195		126				
07:30	61		54		107		31		168		85				
07:45	58		44		106		31		164		75				
08:00	65	224	56	218	130	465	18	88	195	689	74	306			
08:15	61		50		109		26		170		76				
08:30	42		58		104		26		146		84				
08:45	56		54		122		18		178		72				
09:00	61	226	50	194	95	332	20	77	156	558	70	271			
09:15	62		52		71		16		133		68				
09:30	49		60		92		25		141		85				
09:45	54		32		74		16		128		48				
10:00	45	214	29	81	72	287	10	45	117	501	39	126			
10:15	56		28		60		13		116		41				
10:30	52		13		81		15		133		28				
10:45	61		11		74		7		135		18				
11:00	64	252	13	39	64	265	6	19	128	517	19	58			
11:15	61		12		78		6		139		18				
11:30	64		6		74		4		138		10				
11:45	63		8		49		3		112		11				
Sum	1,509		3,915		2,620		2,470		4,129		6,385				
%	36.5		61.3		63.5		38.7								

Hours	5.424		5.090		10.514
Trips	51.6		48.4		
Duration	11:00	04:30	06:30	03:15	06:30
Rate	252	639	540	352	04:15
	0.98	0.92	0.96	0.88	782
					980
					0.98
					0.96

AZ

Location : SANTA FE AVENUE
Segment : E/O MAR VISTA DRIVE
Client : FEDERHART

Site: VISTA
Date: 02/10/05

Interval	EB				WB				Combined		Day:	Thursday
	AM	PM	AM	PM	AM	PM	AM	PM				
12:00	6	32	147	539	14	38	133	557	20	70	280	1,096
12:15	10		134		13		128		23		262	
12:30	8		132		6		146		14		278	
12:45	8		126		5		150		13		276	
01:00	6	17	123	486	8	29	156	545	14	46	279	1,031
01:15	3		156		6		122		9		278	
01:30	7		92		7		127		14		219	
01:45	1		115		8		140		9		255	
02:00	5	19	150	614	1	13	172	666	6	32	322	1,280
02:15	8		155		5		179		13		334	
02:30	4		143		2		141		6		284	
02:45	2		166		5		174		7		340	
03:00	4	32	146	584	4	19	168	694	8	51	314	1,278
03:15	10		146		5		172		15		318	
03:30	5		129		5		162		10		291	
03:45	13		163		5		192		18		355	
04:00	8	57	166	652	8	33	186	738	16	90	352	1,390
04:15	9		170		7		178		16		348	
04:30	14		164		7		180		21		344	
04:45	26		152		11		194		37		346	
05:00	18	241	172	676	13	91	192	715	31	332	364	1,391
05:15	29		168		14		193		43		361	
05:30	106		180		34		163		140		343	
05:45	88		156		30		167		118		323	
06:00	94	416	154	487	64	294	137	513	158	710	291	1,000
06:15	90		116		71		130		161		246	
06:30	114		110		69		130		183		240	
06:45	118		107		90		116		208		223	
07:00	104	689	88	363	134	475	109	371	238	1,164	197	734
07:15	162		108		132		94		294		202	
07:30	212		95		93		86		305		181	
07:45	211		72		116		82		327		154	
08:00	140	491	70	256	112	454	61	242	252	945	131	498
08:15	102		62		102		74		204		136	
08:30	119		63		122		57		241		120	
08:45	130		61		118		50		248		111	
09:00	114	430	50	201	107	438	56	222	221	868	106	423
09:15	118		54		118		64		236		118	
09:30	100		48		105		58		205		106	
09:45	98		49		108		44		206		93	
10:00	104	437	39	117	99	379	56	143	203	816	95	260
10:15	118		36		102		38		220		74	
10:30	115		18		82		35		197		53	
10:45	100		24		96		14		196		38	
11:00	120	468	13	53	128	494	18	60	248	962	31	113
11:15	120		20		127		25		247		45	
11:30	102		10		117		10		219		20	
11:45	126		10		122		7		248		17	
Totals	3,329	5,028			2,757	5,466			6,086	10,494		
%	54.7	47.9			45.3	52.1						

Totals	8,357		8,223		16,580
Splits	50.4		49.6		
Hour	07:15	05:00	11:00	04:30	07:15
Rate	725	676	494	759	1,178
Factor	0.85	0.94	0.96	0.98	0.90

A3

Location : SANTA FE AVENUE
Segment : S/O BUENA CREEK ROAD
Client : FEDERHART

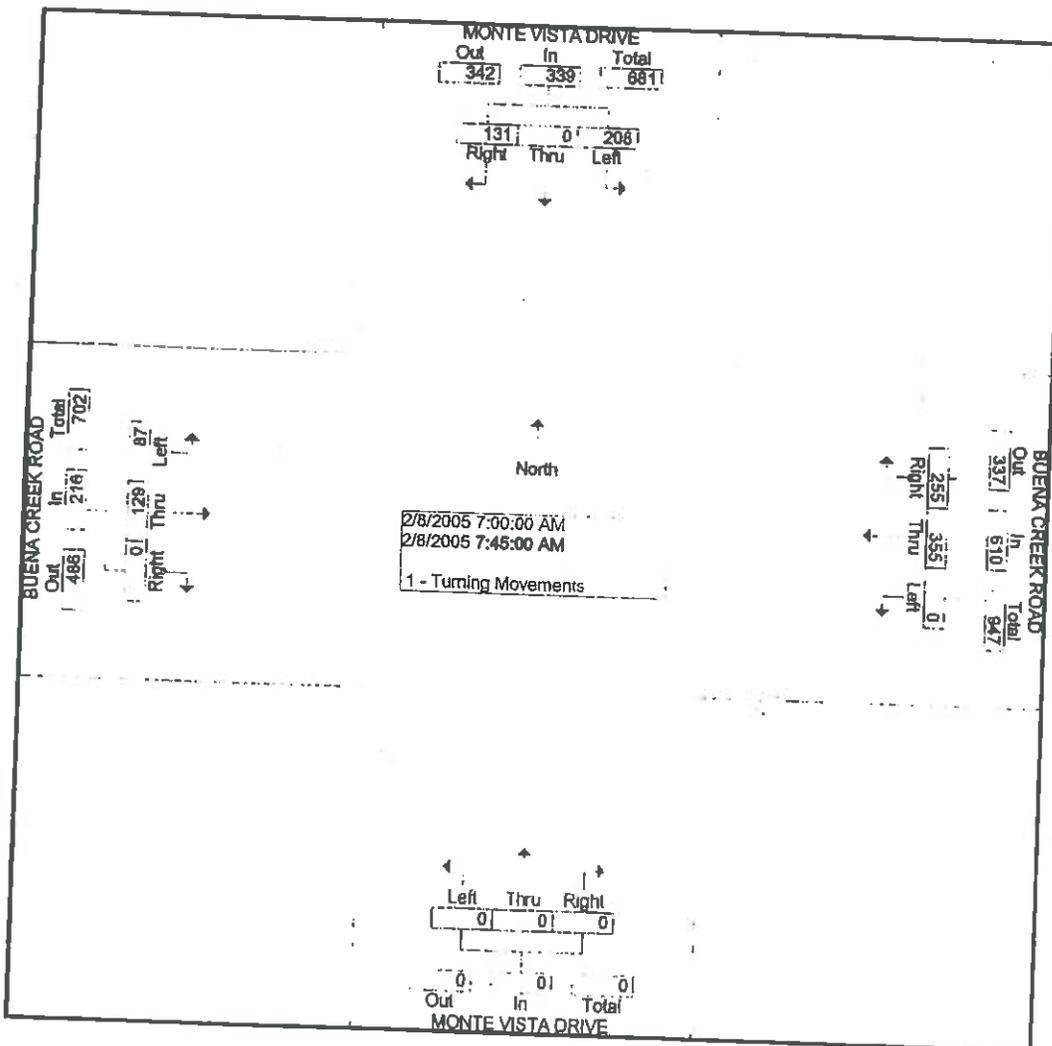
Site: VISTA
Date: 02/10/05

Interval	NB				SB				Combined				Day
	AM		PM		AM		PM		AM		PM		
12:00	10	36	104	469	2	20	35	141	12	56	139	610	Thursday
12:15	12		114		6		54		18		168		
12:30	7		130		8		28		15		158		
12:45	7		121		4		24		11		145		
01:00	4	21	116	455	7	14	29	157	11	35	145	612	
01:15	6		86		2		55		8		141		
01:30	6		122		3		43		9		165		
01:45	5		131		2		30		7		161		
02:00	1	12	142	578	3	10	40	163	4	22	182	741	
02:15	4		142		2		40		6		182		
02:30	3		136		1		34		4		170		
02:45	4		158		4		49		8		207		
03:00	3	18	158	642	4	20	30	118	7	38	188	760	
03:15	3		140		8		40		11		180		
03:30	5		170		2		26		7		196		
03:45	7		174		6		22		13		196		
04:00	8	34	182	691	6	32	6	45	14	66	188	736	
04:15	8		155		4		14		12		169		
04:30	8		176		8		10		16		186		
04:45	10		178		14		15		24		193		
05:00	9	99	180	648	16	120	14	81	25	219	194	729	
05:15	23		174		14		16		37		190		
05:30	27		158		42		25		69		183		
05:45	40		136		48		26		88		162		
06:00	65	321	130	455	38	170	36	125	103	491	166	580	
06:15	74		126		33		29		107		155		
06:30	92		110		37		34		129		144		
6:45	90		89		62		26		152		115		
7:00	92	332	88	317	51	237	22	95	143	569	110	412	
07:15	66		95		58		29		124		124		
07:30	69		62		70		23		139		85		
7:45	105		72		58		21		163		93		
8:00	102	396	68	259	52	167	14	58	154	563	82	317	
08:15	87		64		32		16		119		80		
08:30	106		64		32		14		138		78		
8:45	101		63		51		14		152		77		
9:00	120	395	76	268	38	144	12	69	158	539	88	337	
9:15	98		77		39		16		137		93		
9:30	97		69		35		22		132		91		
9:45	80		46		32		19		112		65		
10:00	96	355	42	105	30	148	14	45	126	503	56	150	
10:15	83		27		46		11		129		38		
10:30	82		22		36		10		118		32		
10:45	94		14		36		10		130		24		
11:00	154	474	15	47	29	118	6	21	183	592	21	68	
11:15	114		19		36		4		150		23		
11:30	100		7		21		5		121		12		
11:45	106		6		32		6		138		12		
%	2.493	4.934			1.200	1.118			3.693	6.052			
	67.5	81.5			32.5	18.5							

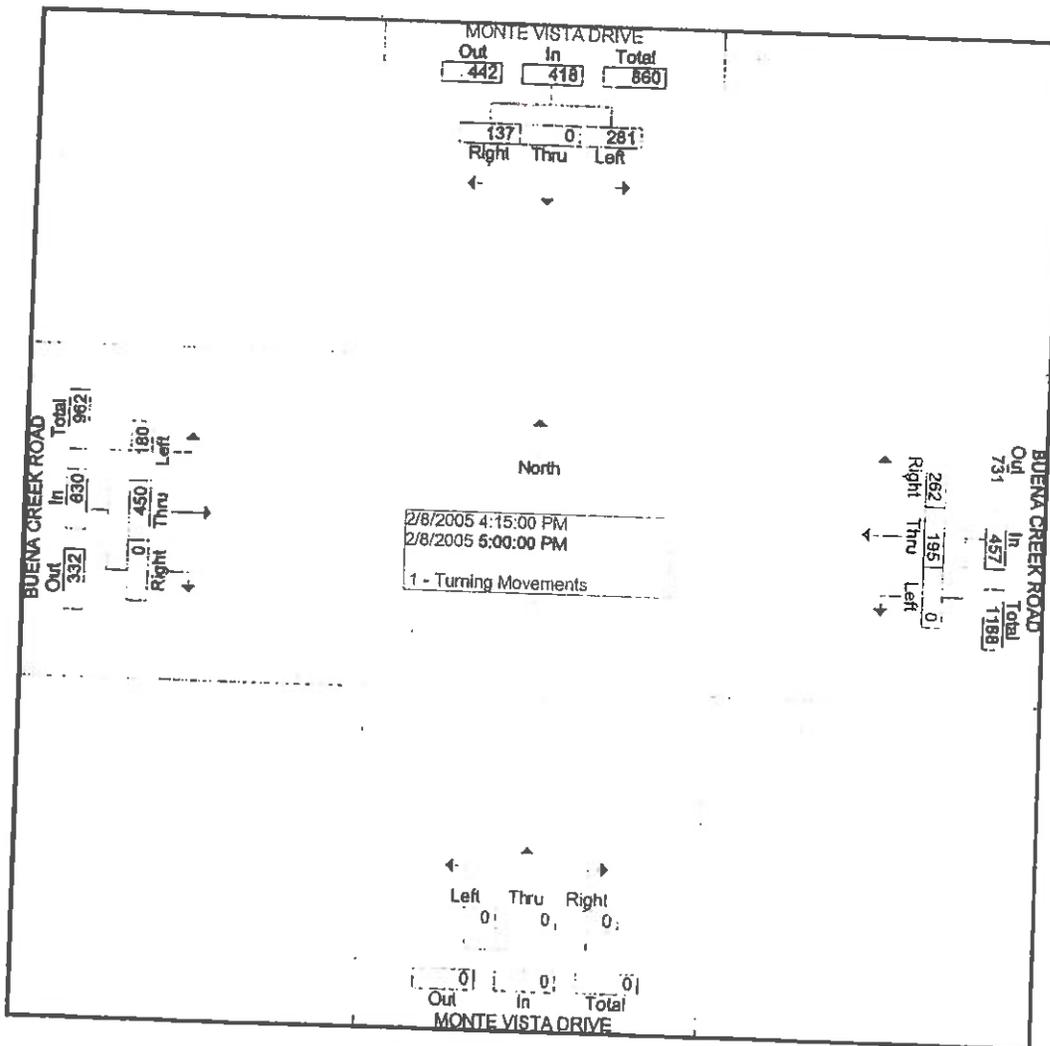
totals	7.427				2.318				9.745			
plits	76.2				23.8							
hour	11:00	04:30			06:45	01:15			11:00	02:45		
e	474	708			241	168			592	771		
	0.77	0.98			0.86	0.76			0.81	0.93		

A 4

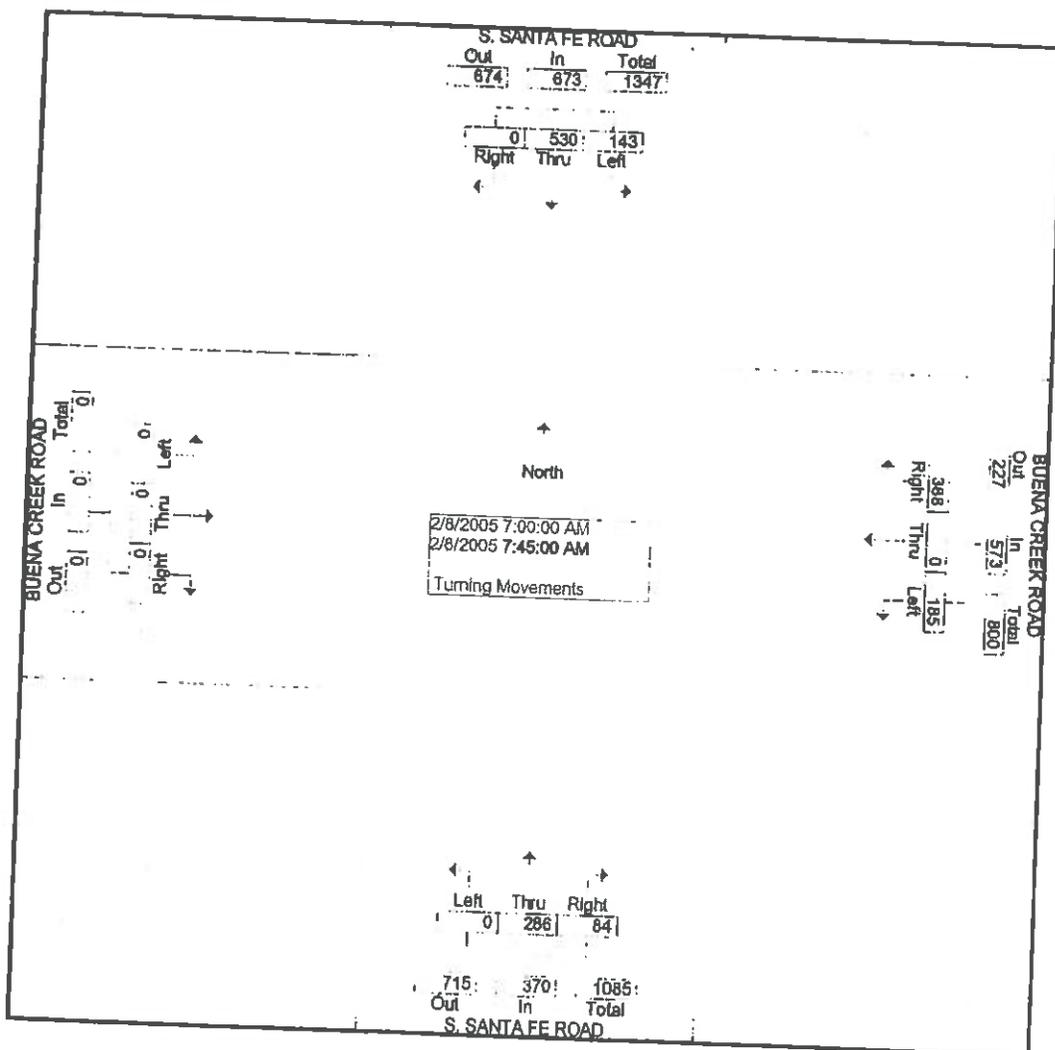
Start Time	MONTE VISTA DRIVE Southbound				BUENA CREEK ROAD Westbound				MONTE VISTA DRIVE Northbound				BUENA CREEK ROAD Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Intersection	07:00 AM																
Volume	131	0	208	339	255	355	0	610	0	0	0	0	0	129	87	216	1165
Percent	38.6	0.0	61.4		41.8	58.2	0.0		0.0	0.0	0.0		0.0	59.7	40.3		
07:45	27	0	71	98	59	99	0	158	0	0	0	0	0	40	23	63	319
Volume																	
Peak Factor																	
High Int.	07:30 AM																
Volume	48	0	51	99	68	91	0	159	0	0	0	0	0	40	23	63	0.913
Peak Factor																	
	0.856																
	0.959																
	0.857																



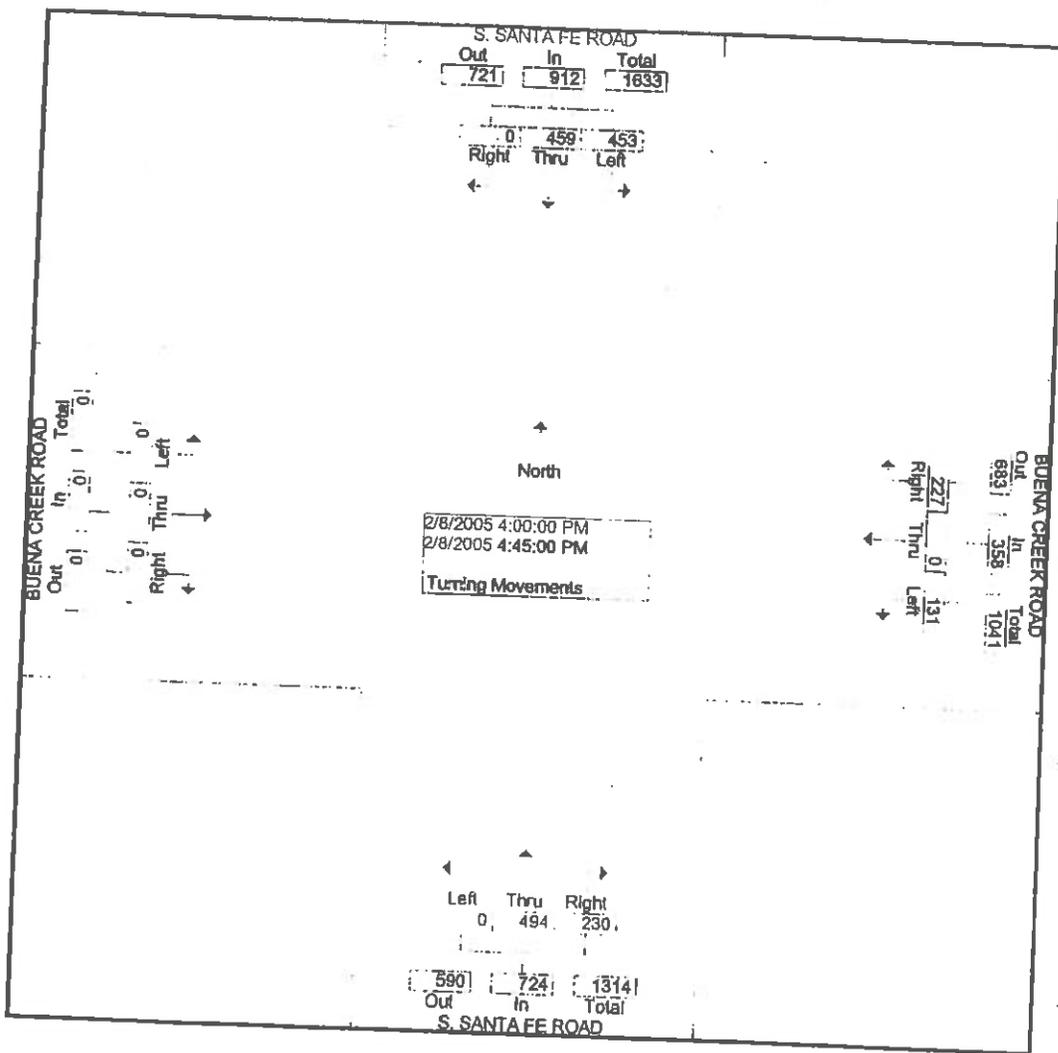
Start Time	MONTE VISTA DRIVE Southbound				BUENA CREEK ROAD Westbound				MONTE VISTA DRIVE Northbound				BUENA CREEK ROAD Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:15 PM																
Volume	137	0	281	418	282	195	0	457	0	0	0	0	0	450	180	630	1505
Percent	32.8	0.0	67.2		57.3	42.7	0.0		0.0	0.0	0.0		0.0	71.4	28.6		
Volume	44	0	54	98	84	53	0	137	0	0	0	0	0	110	38	148	383
Peak Factor																	
High Int. Volume	05:00 PM				04:30 PM								04:15 PM				0.982
Peak Factor	30	0	90	120	84	53	0	137	0	0	0	0	0	118	52	170	0.926
					0.871				0.834								



Start Time	S. SANTA FE ROAD Southbound				BUENA CREEK ROAD Westbound				S. SANTA FE ROAD Northbound				BUENA CREEK ROAD Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Intersection	07:00 AM																
Volume	0	530	143	673	388	0	185	573	84	286	0	370	0	0	0	0	1616
Percent	0.0	78.8	21.2		67.7	0.0	32.3		22.7	77.3	0.0		0.0	0.0	0.0		
07:45																	
Volume	0	162	37	199	99	0	42	141	20	89	0	109	0	0	0	0	449
Peak Factor																	
High Int.	07:30 AM																
Volume	0	155	44	199	110	0	49	159	20	89	0	109	6:45:00 AM				0.900
Peak Factor																	
					0.845				0.901				0.849				



Start Time	S. SANTA FE ROAD Southbound				BUENA CREEK ROAD Westbound				S. SANTA FE ROAD Northbound				BUENA CREEK ROAD Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:00 PM																
Volume	0	459	453	912	227	0	131	358	230	494	0	724	0	0	0	0	1994
Percent	0.0	50.3	49.7		63.4	0.0	36.6		31.8	68.2	0.0		0.0	0.0	0.0		
04:45																	
Volume	0	120	125	245	60	0	43	103	41	123	0	164	0	0	0	0	512
Peak Factor																	
High Int.	04:45 PM																
Volume	0	120	125	245	60	0	43	103	82	135	0	217					0.974
Peak Factor	0.931				0.869				0.834								



2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 Proj Drye & Buena Creek Rd

Average Delay (sec/veh): 0.0 Worst Case Level of Service: [0.0]

Street Name: Buena Creek Road Project Driveway

Approach: North Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Rights: Include Include Include Include

Lanes: 0 1 0 0 0 0 1 0 1 0 0 1 0 0 0 0 0 0 0 0

Volume Module:

Base Vol: 0

Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Initial Bst: 0

Added Vol: 0

PasserbyVol: 0

Initial Fut: 0

User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

PHF Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

PHF Volume: 0

Reduct Vol: 0

Final Vol: 0

Critical Gap Module:

Critical Gap: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

FollowPrm: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Capacity Module:

Conflict Vol: 0

Potent Cap: 0

Move Cap: 1

Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Level of Service Module:

Queue: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Stopped Del: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

LOS by Move: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap: 0

SharedQueue: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Shrd StpDel: 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0

Shared LOS: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

ApproachDel: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

ApproachLOS: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #2 Monta Vista Rd & Buena Creek Rd

Cycle (sec): 100 Critical Vol./Cap. (X): 0.921

Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 27.6

Optimal Cycle: 0 Level of Service: D

Street Name: Buena Creek Road Monte Vista Road

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Stop Sign Stop Sign

Rights: 5 Include 5 Include 5 Include 5 Include

Lanes: 0 1 0 0 0 0 0 0 1 0 0 0 1 0 0 0 0 0 0 0 0

Volume Module:

Base Vol: 87 129 0 0 355 255 208 0 131 0 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bst: 87 129 0 0 355 255 208 0 131 0 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

PasserbyVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 87 129 0 0 355 255 208 0 131 0 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95

PHF Volume: 92 136 0 0 374 268 219 0 138 0 0 0 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 92 136 0 0 374 268 219 0 138 0 0 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MCF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Vol: 92 136 0 0 374 268 219 0 138 0 0 0 0

Saturation Flow Module:

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.40 0.60 0.00 0.00 0.58 0.42 0.61 0.01 0.38 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Final Sat: 233 345 0 0 406 291 362 0 228 0 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.39 0.35 XXXX 0.92 0.92 0.60 0.00 0.60 XXXX XXXX XXXX

Crit Movs: 12.6 12.6 0.0 0.0 38.8 38.8 16.9 16.9 16.9 0.0 0.0 0.0 XXXX XXXX XXXX

Delay/Veh: 12.6 12.6 0.0 0.0 38.8 38.8 16.9 16.9 16.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

AdjDel/Veh: 12.6 12.6 0.0 0.0 38.8 38.8 16.9 16.9 16.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

LOS by Move: B B B B E E C C C C C C C C C C C C C C C C

ApproachDel: 12.6 38.8 16.9 16.9 16.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AppradjDel: 12.6 38.8 16.9 16.9 16.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

LOS by Appr: B B B B E E C C C C C C C C C C C C C C C C

Level of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 Proj Drwy & Buena Creek Rd

Average Delay (sec/veh): 0.0 Worst Case Level of Service: [0.0]

Street Name: Buena Creek Road Project Drwy

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Rights: Include Include Include Include

Lanes: 0 1 0 0 0 0 1 0 1 0 0 0 0 0 0 0

Volume Module:

Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Growth Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Initial Bse: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

User Adj: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

PHF Volume: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Critical Gap Module:

Critical Gap: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

FollowOptLm: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Capacity Module:

Conflict Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Potent Cap: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Move Cap: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

Volumes/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Level of Service Module:

Queue: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Stopped Del: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

LOS by Move: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

SharedQueue: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Shrd StpdDel: 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0

Shared LOS: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

ApproachDel: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

ApproachLOS: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Level of Service Computation Report

2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #2 Monte Vista Rd & Buena Creek Rd

Average Delay (sec/veh): 100 Critical Vol./Cap. (X): 1.163

Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 65.6

Optimal Cycle: 0 Level of Service: F

Street Name: Buena Creek Road Monte Vista Road

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Stop Sign Stop Sign

Rights: Include Include Include Include

Lanes: 0 1 0 0 0 0 0 0 1 0 0 0 1 0 0 0 0 0 0 0

Volume Module:

Base Vol: 180 450 0 0 195 262 281 0 137 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 180 450 0 0 195 262 281 0 137 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 180 450 0 0 195 262 281 0 137 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95

PHF Volume: 189 474 0 0 205 276 296 0 144 0 0 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol: 189 474 0 0 205 276 296 0 144 0 0 0

Saturation Flow Module:

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.29 0.71 0.00 0.00 0.43 0.57 0.67 0.00 0.33 0.00 0.00 0.00

Final Sat: 163 407 0 0 249 335 367 0 179 0 0 0

Capacity Analysis Module:

Vol/Sat: 1.16 1.16 XXXX 0.82 0.81 XXXX 0.81 XXXX XXXX XXXX

Crit Moves: 114.2 114 0.0 0.0 30.6 30.6 0.0 30.6 0.0 0.0 0.0

Delay/Veh: 114.2 114 0.0 0.0 30.6 30.6 0.0 30.6 0.0 0.0 0.0

Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 114.2 114 0.0 0.0 30.6 30.6 0.0 30.6 0.0 0.0 0.0

LOS by Move: F F F D D D D D D D D D

ApproachDel: 114.2 30.6 30.6

Delay Adj: 1.00 1.00 1.00

ApproachDel: 114.2 30.6 30.6

LOS by Appr: F F F D D D

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 Proj Dry & Buena Creek Rd

Average Delay (sec/veh): 0.1 Worst Case Level of Service: B (14.0)

Street Name: Buena Creek Road Project Driveway

Approach: North Bound East Bound West Bound

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Lanes: 0 1 0 0 0 0 1 0 1 0 0 1 0 0 1 0 0 0 0 0 0 0

Volume Module: 3 337 0 0 610 0 1 0 6 0 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bst: 3 337 0 0 610 0 1 0 6 0 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 3 337 0 0 610 0 1 0 6 0 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95

PHF Volume: 3 355 0 0 642 0 1 0 6 0 0 0 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 3 355 0 0 642 0 1 0 6 0 0 0 0

Critical Gap Module: Critical Gap: 4.1 XXXX XXXX XXXX XXXX 6.4 XXXX 6.2 XXXX XXXX XXXX

FollowUpTim: 2.2 XXXX XXXX XXXX XXXX 3.5 XXXX 3.1 XXXX XXXX XXXX

Capacity Module: Capacity Vol: 652 XXXX XXXX XXXX XXXX 1023 XXXX 562 XXXX XXXX XXXX

Conflict Vol: 934 XXXX XXXX XXXX XXXX 261 XXXX 462 XXXX XXXX XXXX

Potent Cap.: 927 XXXX XXXX XXXX XXXX 256 XXXX 454 XXXX XXXX XXXX

Move Cap.: 0.00 XXXX XXXX XXXX XXXX 0.00 XXXX 0.01 XXXX XXXX XXXX

Level Of Service Module: Level of Service: 0.0 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Queue: 0.0 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Stopped Del: 6.9 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

LOS by Move: A LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Shared Queue: 0.0 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Shared StpDel: 8.9 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Shared LOS: A XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX

ApproachDel: XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX

ApproachLOS: B XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX

A/B

Level Of Service Computation Report

2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #2 Monte Vista Rd & Buena Creek Rd

Cycle (sec): 100 Critical Vol./Cap. (X): 0.92

Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 28.7

Optimal Cycle: 0 Level Of Service: D

Street Name: Buena Creek Road Monte Vista Road

Approach: North Bound South Bound East Bound West Bound

Control: Stop Sign Stop Sign Stop Sign Stop Sign

Lanes: 0 1 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0

Volume Module: 87 131 0 0 360 256 209 0 131 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bst: 87 131 0 0 360 256 209 0 131 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 87 131 0 0 360 256 209 0 131 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95

PHF Volume: 92 138 0 0 379 269 220 0 138 0 0 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 92 138 0 0 379 269 220 0 138 0 0 0

Capacity Module: Capacity Vol: 52 138 0 0 379 269 220 0 138 0 0 0

Conflict Vol: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Potent Cap.: 92 138 0 0 379 269 220 0 138 0 0 0

Move Cap.: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Level Of Service Module: Level of Service: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Queue: 0.40 0.60 0.00 0.00 0.58 0.42 0.61 0.00 0.39 0.00 0.00 0.00

Stopped Del: 230 347 0 0 407 269 363 0 228 0 0 0

LOS by Move: A B E C A C C

Shared Cap.: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Shared Queue: 0.0 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Shared StpDel: 12.7 12.7 0.0 0.0 40.8 40.8 17.0 0.0 17.0 0.0 0.0 0.0

Shared LOS: B B A E E C C

ApproachDel: 12.7 40.8 17.0 17.0

ApproachLOS: B 17.0 XXXXXX XXXXXX XXXXXX

Level of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 Proj Dwy & Buena Creek Rd

Average Delay (sec/veh): 0.1 Worst Case Level of Service: B (11.5)

Street Name: Buena Creek Road

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Uncontrolled Uncontrolled

Rights: Include Include Include Include

Lanes: 0 1 0 0 0 0 1 0 0 0 0 1 0 0 0 0 0

Volume Module: 8 731 0 0 457 1 0 0 0 4 0 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bst: 8 731 0 0 457 1 0 0 0 4 0 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 8 731 0 0 457 1 0 0 0 4 0 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95

PHF Volume: 8 769 0 0 481 1 0 0 0 4 0 0 0 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 8 769 0 0 481 1 0 0 0 4 0 0 0 0

Critical Gap Module: 4.1 XXXX XXXX

Critical Gap: 4.1 XXXX XXXX

Follow-Up: 2.2 XXXX XXXX

Capacity Module: 492 XXXX XXXX

Conflict Vol: 1071 XXXX XXXX

Potent Cap.: 1062 XXXX XXXX

Move Cap.: 0.01 XXXX XXXX

Volume/Cap: 0.01 XXXX XXXX

Level of Service Module: 0.0 XXXX XXXX

Queue: 0.0 XXXX XXXX

Stopped Del: 8.4 XXXX XXXX

LCS by Move: A

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: 0.0 XXXX XXXX

Shared Queue: 0.0 XXXX XXXX

Shrd StpDel: 8.4 XXXX XXXX

Shared LGS: A

ApproachDel: XXXXX

ApproachLCS: B

11.5

XXXXXX

A 15

Level of Service Computation Report

2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #2 Monte Vista Rd & Buena Creek Rd

Cycle (sec): 100

Loss Time (sec): 0 (Y+R = 4 sec) Critical Vol./Cap. (X): 1.179

Optimal Cycle: 0 Average Delay (sec/veh): 68.5

Street Name: Buena Creek Road

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Stop Sign Stop Sign

Rights: Include Include Include Include

Lanes: 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Volume Module: 180 457 0 0 198 263 282 0 137 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bst: 180 457 0 0 198 263 282 0 137 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 180 457 0 0 198 263 282 0 137 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95

PHF Volume: 189 481 0 0 208 277 297 0 144 0 0 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 189 481 0 0 208 277 297 0 144 0 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Vol.: 189 481 0 0 208 277 297 0 144 0 0 0

Saturation Flow Module: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Adjustment: 0.28 0.72 0.00 0.00 0.43 0.57 0.67 0.00 0.33 0.00 0.00 0.00 0.00

Lanes: 161 408 0 0 251 333 367 0 178 0 0 0

Final Sat.: 161 408 0 0 251 333 367 0 178 0 0 0

Capacity Analysis Module: 1.18 1.18 XXXX XXXX 0.83 0.83 0.81 XXXX 0.81

Vol/Sat: 1.18 1.18 XXXX XXXX 0.83 0.83 0.81 XXXX 0.81

Crit Movs: 120.0 120.0 0.0 0.0 31.4 31.4 30.9 0.0 30.9 XXXX XXXX

Delay/veh: 120.0 120.0 0.0 0.0 31.4 31.4 30.9 0.0 30.9 XXXX XXXX

Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 120.0 120.0 0.0 0.0 31.4 31.4 30.9 0.0 30.9 XXXX XXXX

LCS by Move: F F D D D D D D D D D D D D

ApproachDel: 120.0 120.0 31.4 30.9 XXXXX XXXXX

Delay Adj: 1.00 1.00 1.00 1.00 XXXXX XXXXX

ApprAdjDel: 120.0 120.0 31.4 30.9 XXXXX XXXXX

LCS by Appr: F F D D D D D D D D D D D D

XXXXXX

Level of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 S Santa Fe Ave & Buena Creek Rd

Cycle (sec): 105
Loss Time (sec): 12 (Y+R = 4 sec) Critical Vol./Cap. (X): 0.964
Optimal Cycle: OPTIMIZED Level of Service: D
48.7

Street Name: Buena Creek Road South Santa Fe Avenue
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected Protected Protected
Rights: Include Include Include Include Include Include
Min. Green: 0
Lanes: 0 0 0 1 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 1

Volume Module:
Base Vol: 0 494 233 457 459 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Growth Adj: 1.00
Initial Bse: 0 494 233 457 459 0
Added Vol: 0
PasserByVol: 0
Initial Fut: 0 494 233 457 459 0
User Adj: 1.00
PHF Adj: 0.95
PHF Volume: 0 520 245 481 483 0
Reduct Vol: 0
Reduced Vol: 0 520 245 481 483 0
PCE Adj: 1.00
MLF Adj: 1.00
Final Vol.: 0 520 245 481 483 0

Saturation Flow Module:
Sat/Lane: 1900
Adjustment: 1.00 0.94
Lanes: 0.00 0.68 0.32 1.00 1.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
Final Sat.: 0 1231 571 1769 1862 0

Capacity Analysis Module:
Vol/Sat: 0.00 0.43 0.43 0.27 0.26 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.15
Crit Moves: ****
Green/Cycle: 0.00 0.45 0.45 0.28 0.73 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.16
Volumes/Cap: 0.00 0.96 0.96 0.96 0.36 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.16
Uniform Del: 0.0 28.3 28.3 37.2 5.3 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.96
Incremental Del: 0.0 23.4 23.4 31.1 0.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.96
Initial Queue Del: 0.0 0.96
Del./Veh: 0.00 1.00 1.00 1.00 1.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
User DelAdj: 0.0 51.7 51.7 68.3 5.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.96
AdjDel/Veh: 0.0 51.7 51.7 68.3 5.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.96
HCMKavg: 0 30 30 21 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 5 0 12

A16

**TABLE 3
CUMULATIVE PROJECTS TRIP GENERATION SUMMARY**

Cumulative Project	Description	Size	Daily Trip Ends	AM Peak Hour Trips		PM Peak Hour Trips	
			ADT	In	Out	In	Out
1. Harnalei Elementary School	School	750 Students	900	151	101	19	44
2. 7-11 Convenience Store/Gas Station	Commercial	1.05 ac	2,124	64	64	74	74
3. Sycamore Vista Business Park	Industrial	280,550	1,964	194	22	47	189
4. Home Depot	Commercial	139,368	6,243	171	115	266	266
5. Vista Business Park	Industrial	300,000	2,100	208	23	50	202
6. T.E.R.I	School	20.0 ac	570	190	0	0	190
7. Scenic Estates	Residential	8 DU	96	2	6	7	3
8. Scenic Estates II	Residential	8 DU	96	2	6	7	3
9. Lone Oak Subdivision	Residential	5 DU	50	1	3	4	1
10. Thibodo Road Multi-Family Housing Project	Residential	320 DU	2,560	41	164	179	77
11. S. Santa Fe Avenue	Widening	-	N/A	N/A	N/A	N/A	N/A
12. TM 5308 Subdivision	Residential	13 DU	160	4	9	11	5
13. Casa De Amparo	Group Care Facility	See Text	416	29	26	28	30
14. Merriam Mountains	Residential	See Text for description					
TOTALS			17,279	1,057	539	692	1,084

Notes:
 See text for cumulative project data sources.
 N/A - not applicable since project does not generate traffic, it is a widening project.

Plus Sugarbush =

590 ADT AM 14 IN 33 OUT PM 41 IN 18 OUT

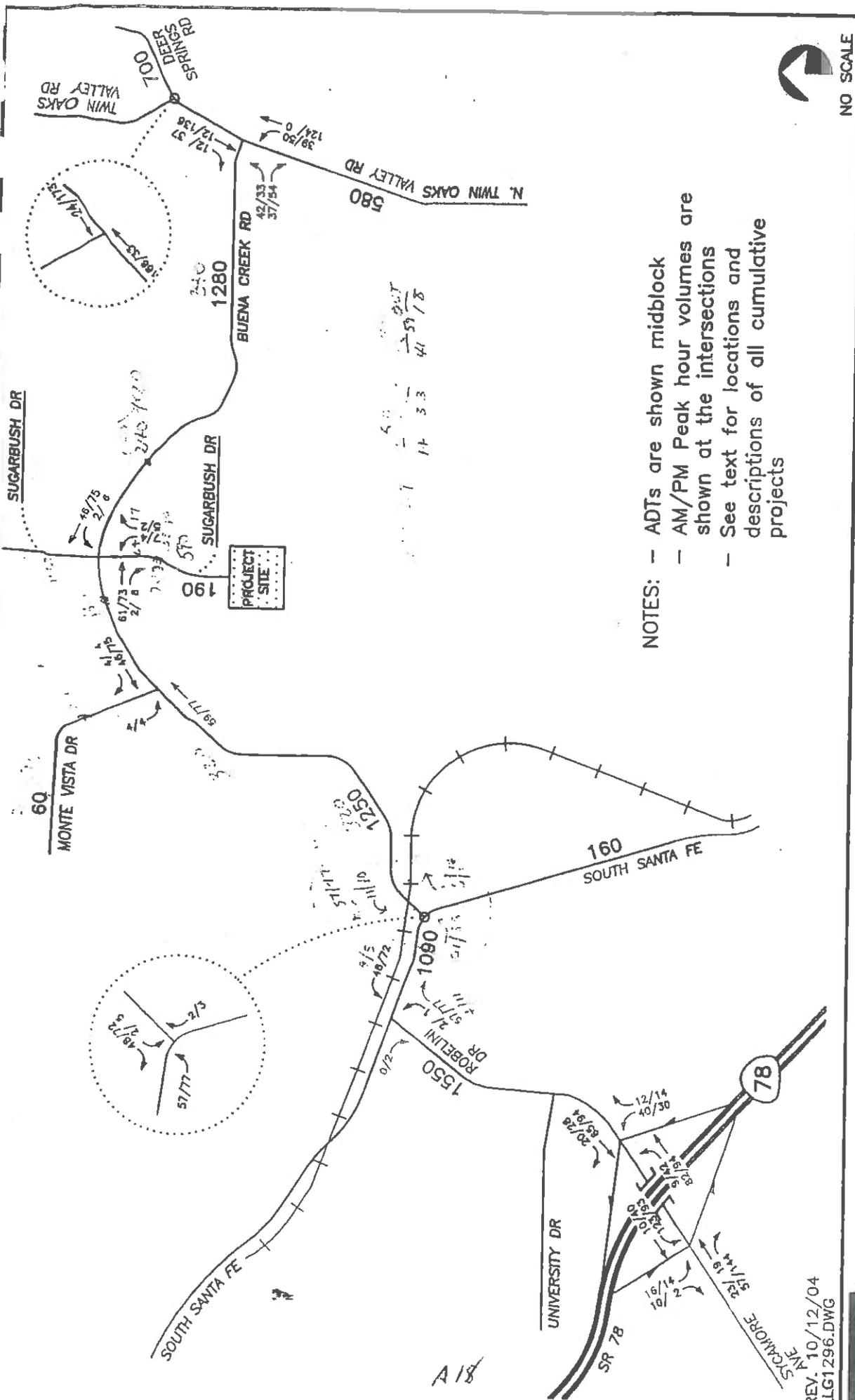


Figure 9
CUMULATIVE PROJECTS TRAFFIC VOLUMES
AM/PM PEAK HOURS & ADTs
SUGARBUSH SUBDIVISION

Level of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 Proj Dryd & Buena Creek Rd

Average Delay (sec/veh): 0.1 Worst Case Level of Service: B (14.8)

Street Name: Buena Creek Road Project Driveway

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign

Rights: Include Include Include

Lanes: 0 1 0 0 0 0 1 0 1 0 0 1 0 0 0 0 0 0

Volume Module: 3 408 0 0 696 0 1 0 6 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bas: 3 408 0 0 696 0 1 0 6 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PasserbyVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 3 408 0 0 696 0 1 0 6 0 0 0

Gasr Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume: 3 408 0 0 696 0 1 0 6 0 0 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 3 408 0 0 696 0 1 0 6 0 0 0

Critical Gap Module: 3 408 0 0 696 0 1 0 6 0 0 0

Critical Gap: 4.1 XXXX XXXX XXXX XXXX 6.4 XXXX 6.2 XXXX XXXX XXXX

FollowOptim: 2.2 XXXX XXXX XXXX XXXX 3.5 XXXX 3.3 XXXX XXXX XXXX

Capacity Module:

Conflict Vol: 706 XXXX XXXX XXXX XXXX 1130 XXXX 716 XXXX XXXX XXXX

Potent Cap.: 892 XXXX XXXX XXXX XXXX 225 XXXX 430 XXXX XXXX XXXX

Move Cap.: 885 XXXX XXXX XXXX XXXX 221 XXXX 423 XXXX XXXX XXXX

Volume/Cap: 0.80 XXXX XXXX XXXX XXXX 0.00 XXXX 0.01 XXXX XXXX XXXX

Level of Service Module:

Queue: 0.0 XXXX XXXX

Stopped Del: 9.1 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

LOS by Move: A

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Shared Queue: 0.0 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Shrd StpDel: 9.1 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Shard LOS: A

ApproachDel: XXXXXX

ApproachLOS: B

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Level of Service Computation Report

2000 HCM 4-way Stop Method (Future Volume Alternative)

Intersection #2 Monte Vista Rd & Buena Creek Rd

Cycle (sec): 100 Critical Vol./Cap. (X): 1.025

Loss Time (sec): 0 (Y&R = 4 sec) Average Delay (sec/veh): 41.1

Optimal Cycle: 0 Level of Service: E

Street Name: Buena Creek Road Monte Vista Road

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Stop Sign Stop Sign

Rights: Include Include Include Include

Lanes: 0 1 0 0 0 0 0 0 1 0 0 0 1 0 0 0 0 0 0

Volume Module: 87 200 0 0 441 261 211 0 131 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bas: 87 200 0 0 441 261 211 0 131 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PasserbyVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 87 200 0 0 441 261 211 0 131 0 0 0

Gasr Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume: 87 200 0 0 441 261 211 0 131 0 0 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 87 200 0 0 441 261 211 0 131 0 0 0

Saturation Flow Module:

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.30 0.70 0.00 0.63 0.37 0.62 0.00 0.38 0.00 0.00 0.00

Final Sat.: 177 407 0 0 430 255 357 0 222 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.45 0.49 XXXX XXXX 1.03 0.59 XXXX 0.59 XXXX XXXX

Crit Moves: Delay/Veh: 14.5 14.5 0.0 0.0 63.5 63.5 17.4 0.0 17.4 0.0 0.0

Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 14.5 14.5 0.0 0.0 63.5 63.5 17.4 0.0 17.4 0.0 0.0

LOS by Move: B B F F C C

ApproachDel: 14.5 63.5 17.4 1.00 XXXXXX

Delay Adj: 1.00 1.00 17.4 XXXXXX

ApproachLOS: B B F C

LOS by Appr: B F

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A19

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 S Santa Fe Ave & Buena Creek Rd

Cycle (sec): 65 Critical Vol./Cap. (X): 0.759

Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 23.0

Optimal Cycle: OPTIMIZED Level Of Service: C

Street Name: Buena Creek Road South Santa Fe Avenue

Approach: North Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected Protected Protected

Rights: Include Include Include Include Include Include

Man. Green: 0

Lanes: 0 0 0 1 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 1

Volume Module:

Table with columns: Base Vol, Growth Adj, Initial Base, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Vol. Values range from 0 to 530.

Saturation Flow Module:

Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat. Values range from 0.00 to 1.00.

Capacity Analysis Module:

Table with columns: Vol/Sat, Crit Moves, Green/Cycle, Volume/Cap, Uniform Del, IncrementDel, InitQueueDel, Delay Adj, Delay/Veh, User DelAdj, AdjDel/Veh, HCM2K/Veh. Values range from 0.00 to 1769.

2000 HCM Unsignalized Method (Future Volumes Alternative)

Level of Service Computation Report

Intersection #1 Proj Dry & Buena Creek Rd

Average Delay (sec/veh): 0.1 Worst Case Level of Service: B (12.2)

Street Name: Buena Creek Road Project Driveway

Approach: North Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Lanes: 0 1 0 0 0 0 1 0 0 0 0 1 0 0 0 0

Volume Module: Base Vol: 8 834 0 0 560 1 0 0 4 0 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Base: 8 834 0 0 560 1 0 0 4 0 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 8 834 0 0 560 1 0 0 4 0 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume: 8 834 0 0 560 1 0 0 4 0 0 0 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol: 8 834 0 0 560 1 0 0 4 0 0 0 0

Critical Gap Module: Critical Gap: 4.1 XXXX XXXX XXXX XXXX XXXX XXXX

FollowUpTim: 2.2 XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Capacity Module: Conflict Vol: 571 XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Potent Cap: 1002 XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Move Cap: 993 XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Volume/Cap: 0.01 XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Level of Service Module: Queue: 0.0 XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Stopped Del: 8.7 XXXX XXXX XXXX XXXX XXXX XXXX XXXX

LOS by Move: A LT - LTR - RT LT - LTR - RT LT - LTR - RT

Movement: Shared Cap: 0.0 XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Shared Queue: 0.0 XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Shrd StpDel: 8.7 XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Shared LOS: A XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX

ApproachDel: 12.2 B XXXXXX

ApproachLOS: B

2000 HCM 4-Way Stop Method (Future Volumes Alternative)

Level of Service Computation Report

Intersection #2 Monte Vista Rd & Buena Creek Rd

Cycle (sec): 100 Critical Vol./Cap. (X): 1.313

Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 99.8

Optimal Cycle: 0 Level of Service: F

Street Name: Buena Creek Road Monte Vista Road

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Stop Sign Stop Sign

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Lanes: 0 1 0 0 0 0 0 0 1 0 0 0 1 0 0 0 0 0 0 0

Volume Module: Base Vol: 180 554 0 0 298 266 288 0 137 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Base: 180 554 0 0 298 266 288 0 137 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 180 554 0 0 298 266 288 0 137 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume: 180 554 0 0 298 266 288 0 137 0 0 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 180 554 0 0 298 266 288 0 137 0 0 0

PCF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Vol.: 180 554 0 0 298 266 288 0 137 0 0 0

Saturation Flow Module: Saturation: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Adjustment: 0.25 0.75 0.00 0.00 0.53 0.47 0.68 0.00 0.32 0.00 0.00

Lanes: 137 422 0 0 309 276 362 0 172 0 0 0

Final Sat.: 1.31 1.31 XXXX XXXX XXXX 0.97 0.80 XXXX 0.80 XXXX XXXX

Capacity Analysis Module: Crit Moves: 173.5 174 0.0 0.0 53.1 53.1 30.4 0.0 30.4 0.0 0.0

Delay/Veh: 173.5 174 0.0 0.0 53.1 53.1 30.4 0.0 30.4 0.0 0.0

AdjDel/Veh: 173.5 174 0.0 0.0 53.1 53.1 30.4 0.0 30.4 0.0 0.0

LOS by Move: F F F F F D D D D D D D

ApproachDel: 173.5 173.5 173.5 173.5 173.5 173.5 173.5 173.5

ApproachLOS: F F F F F D D D D D D D

